No. 3.— *The Stanford Expedition to Brazil, 1911. John C. Branner, Director. The Chilopoda of Brazil.*

By Ralph V. Chamberlin.

The Brazilian chilopods upon a study of which the present paper is primarily a report, were collected for the most part by Mr. W. M. Mann as a member of the Stanford expedition to Brazil from June to September, 1911. As indicated hereafter, in the list by localities and under the particular species concerned, he was assisted in certain localities by Prof. Harold Heath and in others by Dr. Fred Baker. The collection was made almost wholly in parts of Brazil from which either few or no chilopods whatsoever have been previously recorded; and its study, in connection with that of some other material from the country, has brought about such a relatively material increase in the known fauna, that it has seemed advisable to give a complete review of the chilopods of Brazil. The Stanford Expedition collection has been purchased by the Museum of Comparative Zoölogy.

In Dr. Brölemann's Catalogue des Myriopodes du Brésil (São Paulo, 1909. Catalogos de Fauna Braziliera, 2, issued by the Museu Paulista), after the elimination of manifest synonyms and *nomina nuda*, there are mentioned sixteen genera and thirty-nine species of chilopods. The present paper lists seventy-one species under twenty-five genera. Of the additional forms, two families, three genera, and nineteen species have not been elsewhere recorded as occurring in Brazil, and of these one genus and seventeen species are described as new. In addition it has been deemed advisable to include descriptions of a new genus and three new species from the adjoining country of British Guiana, these having been studied in connection with the Brazilian material.

The following list shows the known geographical distribution of the species. From states not here listed no records have been published. The new forms, and those new to the Brazilian fauna, are starred. In addition to these, because of the new territory covered, nearly all of the records of species secured by the Expedition are new within Brazil and of interest and importance in throwing light upon distribution. The greater part of previously published records have been from the coastal states from Bahia southward, the most being from Bahia, Rio de Janeiro, and São Paulo. The States in which Mr. Mann and his associates worked are listed first and in order

below, each being preceded by a letter; while the particular localities within the states in which collecting was carried out are indicated by a preceding number.

A. Rio Grande do Norte.

1. *Natal.* (Mann. June).

* Orphnaeus branneri, sp. nov. Scolopendra viridicornis Newport. Pselliophora nigrovittata (Meinert). Scolopopendropsis calcaratus (Pocock).

2. *Ceará-Mirim.* (Mann and Heath).

Orphnaeus brevilabiatus (Newport). Trematophycus celeris (Humbert and Saussure). Scolopendropsis calcaratus (Pocock).

B. Ceará.

3. *Ceará* (Mann).

Scolopendra viridicornis Newport.

C. Parahyba.

4. *Independencia* (Mann and Heath. Among the hills north of the town).

* Schendylurus perditus, sp. nov. * Adenoschendyla parahybae, sp. nov. Orphnaeus brevilabiatus (Newport). * Cryptops heathi, sp. nov. Pselliophora nigrovittata (Meinert).

5. *Parahyba.*

Scolopendra morsitans Linné.

D. Pará.

6. *Pará* (Mann and Baker. Chiefly in the suburb of Souza along trails through the forest. July).

Orphnaeus brevilabiatus (Newport). * Schizonampa manni, gen. et sp. nov. * Newportia collaris Kraepelin. * Newportia paraensis, sp. nov. Scolopocryptops miersii Newport. Otostigmus goeldi Brölemann. Cupipes spinifer Kraepelin. Hemiscolopendra laevigata Porat. Scolopendra viridicornis Newport. Scolopendra morsitans Linné.

Santarem.

Scolopendropsis bahiensis Brandt. Scolopendra gigantea Linné. Scolopendra morsitans Linné.

E. Amazonas.

7. *Manáos* (Mann and Baker. In and about a ruined church. August).

* Schendylurus bakeri, sp. nov. Orphnaeus brevilabiatus (Newport). Notiphilides grandis Brölemann. * Mecistocephalus punctifrons Newport. Newportia amazonica Brölemann. Newportia bicegoi Brölemann. Newportia ernsti Pocock. Newportia longitarsis (Newport). * Otostigmus amazonae, sp. nov. * Otostigmus tidius, sp. nov. Trematophycus celeris (Humbert and Saussure). Cupipes ungulatis Meinert. Cupipes ungulatis mitis Brölemann. * Cupipes amazonae, sp. nov. Scolopendra morsitans Linné. Scolopendra viridicornis Newport.

8. *Porto Velho* (Mann and Baker. September).

Newportia ernsti Pocock.

Obidos (Brazilian Guiana).

Scolopendra gigantea Linné.

Carsevenne or *Calçoene* River (Brazilian Guiana).

Adenoschendyla geayi Brölemann and Ribaut. Thalthybius (Prionothalthybius) perrieri Brölemann. Ribautia bouvieri Brölemann. Newportia collaris Kraepelin.

F. Matto Grosso.

9. *Madeira-Mamore R. R. Camp 39.* (284 km. from Porto Velho. Mann and Baker. September).

Newportia ernsti Pocock. * Newportia longitarsis sylvae, subsp. nov. * Otostigmus rex, sp. nov. * Otostigmus casus, sp. nov. Trematophycus celeris (Humbert and Saussure). * Cupipes neglectus, sp. nov. * Scolopendra explorans, sp. nov.

10. *Madeira-Mamore R. R. Camp 41.* (On the Rio Madeira 306 km. from Porto Velho. Mann and Baker. September).

* Newportia longitarsis sylvae, subsp. nov. Scolopocryptops miersii Newport. * Ostostigmus suitus, sp. nov. Scolopendra angulata Newport. Pselliophora nigrovittata (Meinert).

11. *Abuná.* (Nearly opposite mouth of Rio Abuná. Mann and Baker. September).

Trematophycus celeris (Humbert and Saussure).

Corumbá.

Aphilodon augustatus Silvestri.

Urucum.

Aphilodon angustatus Silvestri.

PERNAMBUCO.

Villa Bella.

Scolopendra gigantea Linné.

Pernambuco.

Cupipes ungulatis Meinert. Scolopendra viridicornis Newport. Orphnaeus brevilabiatus (Newport).

Rio Capivari.

Cryptops galatheae Meinert.

BAHIA.

Bahia.

Otostigmus scabricaudus (Humbert and Saussure). Trematophycus longipes (Newport). Scolopendropsis bahiensis Brandt. Scolopendropsis calcaratus (Pocock). Scolopendra viridicornis Newport. Scolopendra subspinipes Leach.

Iguarassu.

Scolopendropsis bahiensis Brandt.

Rio São Francisco.

Scolopendra viridicornis Newport.

Santo Antonio da Barra.

Scolopendropsis calcaratus (Pocock). Pselliophora nigrovittata (Meinert).

MINAS GERAES.

Otostigmus scabricaudus (Humbert and Saussure). Trematophycus brasiliensis Kraepelin.

Lagoa Santa.

(?) Geophilus (Schendylurus?) sublaevis Meinert.

RIO DE JANEIRO.

Campo Itatiaya.

Schendylurus luderwaldi Brölemann and Ribaut.

Petropolis.

Cryptops iheringi Brölemann.

Rio Espirito Santo.

Otostigmus scabricaudus (Humbert and Saussure). Trematophycus brasiliensis Kraepelin.

Rio de Janeiro.

Orphnaeus *brevilabiatus* (Newport). (?) Newportia aurantiaca (Gervais). * Mimops occidentalis, sp. nov. Otostigmus scabricaudus (Humbert and Saussure). Cormocephalus aurantiipes (Newport). Scolopendra morsitans Linné. Scolopendra subspinipes Leach.

São Paulo.

Adenoschendyla imperfossa bolbonyx Brölemann and Ribaut.

Alto da Serra.

Cryptops iheringi Brölemann. Otostigmus limbatus (Meinert). Otostigmus scabricaudus (Humbert and Saussure).

Belém.

Otostigmus caudatus Brölemann. Hemiscolopendra laevigata (Porat).

Façenda Nova Nicaragua.

Schendylurus gounellei (Brölemann).

Itapetininga.

Otostigmus caudatus Brölemann.

Piquete.

Otostigmus scabricaudus (Humbert and Saussure). Otostigmus tibialis Brölemann.

Poco Grande.

Schendylurus paulista (Brölemann).

Santos.

Otostigmus limbatus Meinert. Otostigmus tibialis Brölemann.

São Paulo.

Otostigmus caudatus Brölemann. Otostigmus tibialis Brölemann.

Paraná.

Otocryptops ferrugineus macrodon Kraepelin. Otostigmus tibialis Brölemann.

Iguassú.

Mecophilus neotropicus Silvestri.

Santa Catherina.

Blumenau.

Adenoschendyla plusiodonta (Attems).

Rio Grande do Sul.

Cryptops iheringi Brölemann. Cryptops galatheae Meinert.

Porto Allegre.

Scolopocryptops miersii Newport.

São Laurenço.

Scolopocryptops miersii Newport.

Brazil (Without more definite locality).

? Schendylurus brasilianus (Silvestri). Adenoschendyla imperfossa (Brölemann). Mecistauchenius micronyx Brölemann. (?) Newportia viridis (Gervais). Otocryptops ferrugineus (Linné). Otocryptops melanostomus (Newport). Trematophycus longipes (Newport). Scolopendra polymorpha Wood. Scolopendra alternans Leach. Cupipes brasiliensis (Humbert and Saussure). Lithobius forficatus (Linné).

It seems scarcely necessary to point out the pronounced dominance of the Scolopendroidea in the Brazilian chilopod fauna and the practically complete absence of the Lithobiomorpha, so abundant in the Northern Hemisphere. It is probable, however, that a fair representation of the Henicopidae will later be found to occur. In the Geophiloidea the Schendylidae are manifestly dominant, the Oryidae coming next; while the Geophilidae proper are at present known with certainty to be represented by but two species, one of which is here first recorded and described.

SCOLOPENDROIDEA.

Cryptopidae.

Of this family, five genera (Cryptops, Mimops, heretofore known only from China, Newportia, Otocryptops, and Scolopocryptops) are represented in the Brazilian fauna, this being about half of the total number.

Cryptops Leach.

Trans. Linn. Soc. London, 1814, **11**, p. 384.

Key to Species.

a. Tarsi of all legs distinctly biarticulate; last ventral plate with scattered dark spicules or spinous points which also cover the coxopleurae.....*C. iheringi* Brölemann.

aa. Tarsi of only last two pairs of legs distinctly biarticulate; last ventral plate and coxopleurae not armed with spicules.

b. Second dorsal plate distinctly bisulcate; anterior margin of prosternum nearly straight.....*C. heathi,* sp. nov.

bb. Second dorsal plate without sulci; anterior margin of prosternum distinctly biarcuate.....*C. galatheae* Meinert.

Cryptops iheringi Brölemann.

Rev. Museu Paulista, 1901, **5**, p. 42, pl. 1, fig. 6, 7; Kraepelin Revis. Scolop., 1903, p. 32, fig. 2; Brölemann, Cat. Myr. Brésil, 1909, p. 8.

Localities.— State of São Paulo: Alto da Serra (type loc.); State of Rio de Janeiro: Petropolis; State of Rio Grande do Sul.

Cryptops galatheae Meinert.

Vidensk medd. nat. foren. Kjøbenhavn, 1887, p. 140; Kraepelin, Revis. Scolop., 1903, p. 54.

Cryptops capivarae Pocock, Ann. mag. nat. hist., 1891, ser. 6, **8**, p. 158; Brölemann, Cat. Myr. Brésil, 1909, p. 8.

Cryptops brasiliensis Attems, Mitt. Mus. Hamburg, 1900, **18**, p. 112; Brölemann, Cat. Myr. Brésil, 1909, p. 8.

Localities.— State of Rio Grande do Sul (*brasiliensis* Attems); State of Matto Grosso: Rio Capivari (*capivarae* Pocock); Argentina: Montevideo (*galatheae* Meinert).

Cryptops heathi, sp. nov.

Color yellowish. Head a little darker than the body.

Head widest anteriorly, the sides converging caudad; caudal margin straight, meeting the edge of the first dorsal plate flush or scarcely overlapping the latter. Sulci not evident in middle and anterior portions; but rather faintly indicated caudad. Scarcely punctate.

Prosternum not punctate; with a median longitudinal furrow. Anterior margin nearly straight, being very slightly bowed caudad toward each end; bearing three bristles on each side. (Plate **1**, fig. 2).

First dorsal plate with a distinct transverse cervical sulcus which is angularly bent caudad at the middle line, the plate being depressed at this angle. Two longitudinal sulci present, but these in the type are rather weak; forking cephalad, the inner branches meeting at an angle at the median line a little caudad of the cervical sulcus and the lateral lines each meeting the sulcus farther laterad (see Plate **1**, fig. 1).

All dorsal plates from the second to twentieth longitudinally bisulcate. Plates not roughened; none of them bearing cornicles.

Last plate with a shallow median longitudinal furrow which is more evident toward the caudal end.

Ventral plates not punctate. Last ventral plate widely, semicircularly, rounded caudad.

Coxopleurae subtruncate caudally, not at all extended. Pores few, small, not reaching the caudal edge by a large space.

Anterior legs not distinctly biarticulate. Anal legs with prefemur, femur, and, less distinctly, the tibia longitudinally furrowed dorsally. Prefemur with numerous spinules of the usual character over ventral and mesal surface; elsewhere with bristles; no longitudinal glabrous area on ventral side. Femur armed similarly to the prefemur but bearing in addition to the spinules a single stout tooth on the ventral surface toward the distal end. Tibia bearing ventrally toward the mesal edge a row of stout teeth; and the first tarsal joint bearing in corresponding location two similar teeth with an elevation distad of them as shown in Plate **1**, fig. 3.

Length of type cir. 10 mm.

Locality.—State of Parahyba: Independencia! (Mann and Heath). One specimen taken in the hills north of the town.

Paracryptops Pocock.

Ann. mag. nat. hist., 1891, ser. 6, **7**, p. 227. Kraepelin, Rev. Scolop., 1903, p. 59.

Previously this genus was known only from the East Indies, from where two species had been described. Another species has been recently described from India.

Paracryptops inexpectus, sp. nov.

Color light lemon-yellow, darkest cephalad. Head darker than body, dilute orange-yellow excepting at anterior end where light yellow. Antennae and legs pale yellowish.

Cephalic plate overlapped by the first dorsal plate. Widest toward anterior end, from where the sides at first slightly and then more strongly converge to the caudal corners; anterior border of head subtriangular, notched at median line. On caudal portion with two short subparallel sulci; a pit-like depression a little distance from each lateral margin at middle of length; not punctate. Hair sparse.

Antennae composed of seventeen articles as usual. Densely clothed, with fine short hairs but these becoming longer and much sparser proximad.

Prosternum rather widely though but moderately depressed along the median longitudinal line. Anterior margin moderately extended cephalad, though less so than in *breviunguis;* margin each side of the narrow median incision broadly semicircular or with edges from rounded ectal ends to mesal incision substraight, the two sides meeting at an obtuse re-entrant angle; no distinct semilunar dental plates are present though there is a suggestion of the separation of the smooth, rounded, marginal portion suggestive of the condition in *weberi.*

First dorsal plate long; smooth; without furrows or with but very faint and short traces of a longitudinal pair toward anterior end. Submedian paired longitudinal sulci present on other dorsal plates from the second to the penult as are also the curved lateral sulci, the latter being sharply impressed excepting on the first few plates, where they are faint. Last dorsal plate with caudal produced border subtriangular, the median angle somewhat obtuse with the margin each side also forming a slight, very obtuse, angle near middle of its length. Plate with a very deep median longitudinal sulcus.

The ventral plates show a somewhat semicircular transverse impression in front of the level of the legs and a second transverse impression a little caudad of the legs, but not truely cruciform impression is indicated in the type. Last ventral plate with sides nearly straight, these converging to the semicircular caudal border.

Spiracles longitudinally elliptic.

Tarsi of anterior legs undivided. Legs clothed with sparse stiff bristles, these more spinescent on more caudal pairs. Prefemur of anal legs clothed with numerous long spines excepting dorsally and on median portion of ectal surface where they are replaced with fine hairs. Femur armed with similar or slightly more slender spines which are confined, however, more nearly to the strictly ventral surface; without teeth. Tibia without spines but bearing ventrally a longitudinal series of four teeth, these teeth curving caudad at distal ends. First tarsal joint with a single tooth at proximal end on ventral surface. Second tarsal joint without true teeth; but on ventral surface at proximal end it is extended into a conspicuous rounded process.

Length cir. 16 mm.

Locality.— British Guiana. One specimen taken at Washington, D. C., in pots of plants imported from British Guiana.

Mimops Kraepelin.

Revis. Scolop., 1903, p. 62.

This genus has heretofore been known from one species (*M. orientalis* Kraepelin) based upon a single specimen from China (Province Shensi). It was a matter of much surprise and interest, therefore, to find in the collection of the M. C. Z. two specimens of a distinct species but fully conforming to this genus in a vial with specimens of *Orphnaeus brevilabiatus* (Newport) from Rio de Janeiro. The specimens of Orphnaeus had been labeled *O. brasiliensis* by Meinert, who seems to have overlooked or to have failed to examine critically the smaller specimens of Mimops. It is, of course, quite possible that the specimens were introduced to Rio de Janeiro on ships from the East; but this must remain for the present uncertain.

Mimops occidentalis, sp. nov.

The color of the types appears to have been yellowish; but because of long preservation the original color of the specimens cannot be satisfactorily ascertained.

Cephalic plate wider than long, nearly in ratio 12:11. A little overlapping the first dorsal plate. Widest anteriorly, with sides converging caudad; caudal margin mesally a little incurved; the anterior margin incised between bases of antennae. Longitudinally depressed in caudal region each side of middle. (Plate 1, fig. 4).

Antennae composed of seventeen or eighteen articles, which in the proximal half are as wide as or wider than long, but distad become longer than wide.

Anterior margin of prosternum nearly straight being but very weakly widely convex; bearing two moderately high, distally rounded, dental plates separated by a median spaces or incision which is rounded at bottom and is deeper than in *orientalis* Kraepelin. All joints of prehensorial feet unarmed. Claw short and stout and but little curved. (Plate 1, fig. 5).

First dorsal plate with a transverse sulcus a little caudad of margin of head, this sulcus bending caudad at middle region. Also with a longitudinal furrow each side of the middle extending cephalad from the caudal margin and uniting at an angle with its fellow near the middle of the plate, from where they continue as a single median furrow to the transverse sulcus (Plate 1, fig. 4). Other dorsal plates bi-

sulcate. The sulci of the second and third as well as of the others entirely crossing the plate. A ridge-like elevation or keel between the sulci. Plates longitudinally depressed on each side between the sulcus and the lateral margin. (Plate **1**, fig. 6). Last dorsal plate margined. Bowed out caudad with the mesal part truncate, the margin on each side of truncation slightly incurved and extending obliquely to the lateral margin. The two longitudinal sulci also evident on this plate excepting at caudal end.

Second to nineteenth ventral plates longitudinally bisulcate. First plate with a median longitudinal furrow. Especially the more posterior plates longitudinally broadly depressed each side of the middle. Last ventral plate strongly narrowed caudad, though less strongly so than in *orientalis*. Caudal margin straight or but slightly excurved; corners rounded.

Coxopleurae extended caudad in a conical process which is stouter and less cylindric than in *orientalis*. Pores small and numerous. (Plate **1**, fig. 7).

Tarsi of all legs distinctly biarticulate. Anal legs of form very similar to that of *orientalis*. Prefemur with a low dorsal elevation at distal end. Claw much shorter than tarsus.

Length 10.5 mm.

Locality.— State of Rio de Janeiro: Rio de Janeiro. Nathaniel Thayer expedition. 1864. M. C. Z.

Because of long preservation the two specimens are bleached and almost wholly bereft of hairs and spinules; accordingly, no attempt is made to describe their presence and characteristics. *Mimops orientalis* Kraepelin, the other species of the genus, is from Shensi, China. It is a much larger form and differs in numerous structural details from the present species.

Otocryptops Haase.

Abhandl. Mus. Dresden, 1887, **5**, p. 96.

Scolopocryptops Newport (in part), Trans. Linn. soc. London, 1844, **19**, p. 405. Meinert (ad part. max.), Proc. Amer. philos. soc., 1886, **23**, p. 179.

Otocryptops Kraepelin, Revis. Scolop. 1903, p. 68. Verhoeff, Bronn's Thierreich, 1907, **5**, p. 255.

Key to species.

a. Twentieth, and often also the twenty-first, legs with a spine both on tibia and on tarsus; prosternum with anterior margin

bearing two to four more or less distinct teeth or dentiform elevations.

b. Basal tooth of first joint of prehensors small or but moderate in size, being at base from one eighth to one tenth as thick as the joint.....*O. ferrugineus* (Linné).

bb. Basal tooth of first joint of prehensors large, being at base nearly one fourth as wide as the joint.

O. ferrugineus macrodon Kraepelin.

aa. Twentieth to twenty-third pairs of legs always lacking tibial and tarsal spines; prosternal margin smooth, without trace of teeth.

O. melanostomus (Newport).

Otocryptops ferrugineus (Linné).

Scolopendra ferruginea Linné, Syst. nat. ed., 12, 1767, **6**, p. 1063.

Scolopocryptops ferruginea Newport, Trans. Linn. soc. London, 1844, **19**, p. 406.

Scolopocryptops rufa Gervais, Insect. Aptères, 1847, **4**, p. 297.

Scolopocryptops mexicana Humbert et Saussure (non Saussure, 1860), Rev. mag. zool., 1869, p. 158.

Scolopocryptops sexspinosa Porat (non Say), Bih. Svensk. vet. akad. Handl., 1876, **4**, no. 7, p. 26. Kohlrausch (in part), Arch. naturg., 1881, **47**, 1, p. 54.

Scolopocryptops antillarum Marsh, Trans. Ent. soc. London, 1878, p. 37.

Scolopocryptops miersii Meinert (ad part max), Proc. Amer. philos. soc., 1886, **23**, p. 181.[1]

Scolopocryptops bisulca Karsch, Abhandl. Naturw. ver. Bremen, 1887, **9**, p. 66.

Scolopocryptops strigilis Karsch, Ibid.

Scolopocryptops meinerti Pocock, Ann. mag. nat. hist., 1888, ser. 6, **2**, p. 474.

Otocryptops ferrugineus Kraepelin, Revis. Scolop., 1903, p. 72.

Otocryptops sexspinosus Brölemann (non Say, the Brazilian record), Cat. Myr. Brésil, 1909, p. 11.

Locality.— "Brazil."

This is a widely distributed species in Mexico, Jamaica, Haiti, and the Antilles generally, Central America, Ecuador, and Peru.

[1] Of the specimens in the M. C. Z. labeled by Meinert as *S. miersii* and reported upon in the paper cited above, one specimon, from Martinique, is the true *S. miersii* Newport, the others being *O. ferrugineus.*

Otocryptops ferrugineus macrodon Kraepelin.

Revis. Scolop., 1903, p. 74.

Locality.— State of Paraná: Paraná (sec. Kraepelin).

Separated by Kraepelin from the species on the basis of the larger tooth on the first joint of the prehensors as indicated in the key above.

Otocryptops melanostomus (Newport).

Scolopocryptops melanostoma Newport, Trans. Linn. soc. London, 1844, **19**, p. 406; Gervais, Insect. Aptères, 1847, **4**, p. 298.
Scolopocryptops megalocephalus Kohlrausch, Archiv. naturg., 1881, **47**, 1, p. 57.
Scolopocryptops luzonicus Kohlrausch, Ibid., p. 58.
Scolopocryptops boholiensis Kohlrausch, Ibid., p. 58.
Scolopocryptops geophilicornis Tömösvary, Termes. füzetek, 1885, **9**, p. 65.
Otocryptops luzonicus Haase, Abhandl. Mus. Dresden, 1887, **5**, p. 98.
Otocryptops luzonicus australis Haase, Ibid., p. 98.
Otocryptops longiceps Pocock, Ann. mag. nat. hist., 1890, ser. 6, **8**, p. 160.
Otocryptops melanostoma Pocock, Journ. Linn. soc. London, 1891, **24**, p. 464; Brölemann, Ann. Soc. ent. France, 1898, **67**, p. 250; Kraepelin, Revis. Scolop., 1903, p. 74, fig. 33, 34.
Otocryptops aculeatus Attems, Abhandl. Senckenb. gesellsch., 1897, **23**, p. 478.

Locality.— Brazil (recorded as *O. longiceps* by Pocock).

Also known from Argentina and Venezuela and Porto Rico, St. Vincent, etc., and occurring widely in the East Indies as well.

Scolopocryptops Newport.

Newport (in part), Trans. Linn. soc. London, 1844, **19**, p. 405; Kraepelin, Revis. Scolop., 1903, p. 76; Verhoeff, Bronn's Thierreich, 1907, **5**, p. 255.

The following is the only species known from the Western Hemisphere.

Scolopocryptops miersii Newport.

Trans. Linn. soc. London, 1844, **19**, p. 405; Meinert (in part min.), Proc. Amer. philos. soc., 1886, **23**, p. 181; Pocock, Journ. Linn. soc. London, 1893, **24**, p. 146; Silvestri, Ann. Mus. civ. stor. nat. Genova, 1895, ser. 2, **14**, p. 24; Brölemann, Ann. Soc. ent. France, 1898, **67**, p. 250; Rev. Museu Paulista, 1901, **5**, p. 42; Kraepelin, Revis. Scolop., 1903, p. 77; Brölemann, Cat. Myr. Brésil, 1909, p. 33.

Localities.— State of Matto Grosso: Madeira-Mamore R. R. camp 41 on the Rio Madeira! (W. M. Mann); State of Para: Para, suburb of Souza! (Mann and Baker); State of Rio Grande do Sul: Porto Allegre, São Laurenço.

This species is common from the southern United States southward through Mexico and Central America to Venezuela, Guiana, and Brazil.

Newportia Gervais.

Insect. Aptères, 1847, **4**, p. 298; Kraepelin, Revis. Scolop., 1903, p. 76; Verhoeff, Bronn's Thierreich, 1907, **5**, p. 251.

Newportia + *Scolopendrides*, Saussure, Rev. mag. zool. 1869, ser. 2, **21**, p. 158.

This genus, peculiar to tropical and subtropical America, is represented in Brazil by seven known species, of which four have been previously recorded. Of the three here first listed from Brazil, two are described as new. In addition, *Scolopocryptops aurantiaca* and *S. viridis* Gervais (Insect. Aptères, **4**) are probably based upon members of the present genus; but there is nothing in the original descriptions to make precise identification possible, and the names must be dropped until the types are examined, if they now be in existence.

Key to Species.

a. Distal division of tarsus of anal legs indistinctly many ringed, the divisions not clearly separated or numerable; tibia of legs, excepting the last three pairs, armed both laterally and ventrally with a stout spine; tarsus of these legs also with a stout ventral spine; spiracles very small..... (*Scolopendrides* Saussure).

b. Anal leg terminating in a well-developed claw. *N. amazonica* Brölemann.

bb. Anal leg clawless.

c. Paired longitudinal sulci of head crossed near caudal ends with a fine and distinct transverse sulcus; sulci of second dorsal plate evident from anterior margin caudad to or past the middle of plate..... *N. ernsti* Pocock.

cc. Paired longitudinal sulci of head not crossed near base by any such transverse sulcus; sulci of second dorsal plate not evident on anterior half, being present only as short lines at caudal border which bifurcate into a very short mesal branch and an ectal one that runs almost directly ectad to the lateral margin..... *N. paraensis*, sp. nov.

aa. Distal division of tarsus of anal legs composed of a limited number of articles clearly separated from each other; tibia of anterior pairs of legs with only a lateral spine; tarsi of these legs without any ventral spine; spiracles large and distinct.
(*Newportia sens. str.*).

b. First dorsal plate with a simple, semicircular or nearly semicircular transverse cervical sulcus; its paired longitudinal sulcus simple and undivided; no median, pit-like, depression caudad of median sulcus.

c. Prefemur of anal legs on dorsomesal surface with two rows of from seven to ten spinules.
N. longitarsis (Newport).

cc. Prefemur of anal legs without any spinules proper additional to the large ventral spines.
N. longitarsis sylvae, subsp. nov.

bb. First dorsal plate with the transverse cervical sulcus bent angularly caudad at middle and with a pit-like, median, depression caudad of its apex; paired longitudinal sulci bifurcating cephalad, the inner branches meeting in the depression and the lateral extending cephalo-ectad to the transverse sulcus, the branches together forming a more or less w-shaped outline.

c. First joint of tarsus of anal legs clavately thickened distad and with corner drawn out at side into a pointed angle; part of first plate in front of transverse sulcus about as long as that caudad of it.
N. collaris Kraepelin.

cc. First joint of tarsus of anal legs not thus clavately thickened distad; cervical sulcus considerably cephalad of middle of first plate.....*N. biegoi* Brölemann.

Newportia amazonica Brölemann.

Rev. Museu Paulista, 1903, **6**, p. 69, pl. 11, fig. 3, 4; Brölemann, Cat. Myr. Brésil, 1909, p. 9.

Locality.— State of Amazonas: Manáos! (Mann and Baker. This is also the type locality).

Kraepelin says (Revis. Scolop., p. 85) with reference to this species: —"S. amazonica Bröl. scheint sich von der vorsthenden Art [N.

ernsti] vornehmlich durch den Besitz eines winzigen Klaue am Ende der Tarsengeissel zu unterscheiden. Ich glaube kaum das es sich hier um eine artliche Verschiedenheit, sondern um eine individuelle Rückschlagsbildung handelt, die im interessanter Weise die Herkunft der Newportien aus Formen mit Klauen tragenden Analbeinen demonstriert."

But this author is clearly mistaken in regarding the claw thus as an individual atavistic variation, inasmuch as a normal and well-developed claw is present in all the specimens secured in the type locality by Mr. Mann (Plate 2, fig. 4). In *Newportia ernsti*, occasionally a very small and wholly straight chitinous point may occur at the tip of the tarsus (Plate 2, fig. 5), but apparently never a true claw or anything that might be regarded as properly transitional to the condition in *amazonica*. The spining of the prefemur, etc., is also constantly different, there being in all the specimens examined but four ventral spines instead of six, these being also relatively considerably larger.

Newportia ernsti Pocock.

Ann. mag. nat. hist., 1891, ser. 6, 8, p. 161; Kraepelin, Revis. Scolop., 1903, p. 85, fig. 38, 39; Brölemann, Cat. Myr. Brésil, 1909, p. 10.

Localities.— State of Amazonas: Manáos!, Porto Velho! (Mann and Baker). State of Matto Grosso: Madeira-Mamore R. R. camp 39 on the Rio Madeira (W. M. Mann).

Numerous specimens were secured at Manáos and several at each of the other two places indicated. Closely related to the preceding species.

Newportia paraensis, sp. nov.

Color yellow of a reddish tinge, with the most caudal plates darker.

Head with prosternum and prehensors and the first dorsal plate reddish brown. Antennae yellow, darkest proximally. Head with punctations distinct and numerous, not fine, more sparse in frontal region, particularly in a transverse band across its caudal portion. Two median sulci distinct forward to middle of plate and not crossed by any transverse sulcus; a median longitudinal furrow from anterior margin a little distance caudad. Caudal margin widely convex, a little incurved right of middle portion of sides straight and parallel; caudal corners widely rounded.

Antennae short, composed of sixteen (mostly) or seventeen articles. None of the articles glabrous but the first two more sparsely clothed with hair than the others, the density increasing from the second to the fourth and thereafter essentially uniform.

Anterior margin of prosternum considerably more elevated ectally than mesally; bearing two wide but very short dental plates which are weakly convex.

First dorsal plate with a strictly semicircular cervical sulcus which is entirely free from the head and at its middle nearly one third the distance from the head to the caudal margin of the plate. Median longitudinal sulci distinct, subparallel, crossing the transverse sulcus and attaining the front margin.

Second dorsal plate with the median longitudinal sulci appearing as very short lines at caudal border, each line being continuous with a sulcus extending a little cephalad of directly ectad to the lateral margin and with a very short line extending mesocephalad. The median longitudinal sulci are complete on the other plates. The third plate shows a rather wide and shallow median longitudinal furrow. Subsequent plates with a distinct narrow median longitudinal keel set off by two deep furrows. Plates from fifth caudad with a distinct longitudinal furrow on each side with also less distinct indications of similar ones on the third and fourth.

Last dorsal plate bowed considerably caudad, the protruding mesal portion truncate. Without a median sulcus or with but weak trace of such toward caudal end.

Ventral plates from the second to the penult with a strongly marked median longitudinal furrow which is continuous from the anterior margin to a little in front of the caudal border. Lateral sulci extending from anterior margin to caudal portion of plate, converging with each lateral margin. Not distinctly punctate.

Last ventral plate considerably wider than long; narrowed caudad; posterior corners well rounded; caudal margin widely though but moderately convex, slightly crenately notched each side of the middle.

Spiracles moderate; mostly elliptical, being obliquely or rather more dorsoventrally compressed.

Coxopleural processes long and straight; ending in a single slender and acute spine; process with but scattered short hairs.

Prefemur of anal legs armed ventrally with a series of six large spines and, in addition, on mesal surface with about eighteen spinules arranged in four longitudinal series. Femur armed ventrally with two spinules on proximal half and in a longitudinal line. Other joints

unarmed. Tibia with rather sparse and moderately long hairs. Joints of tarsus with more numerous similar hairs. Second division of tarsus indistinctly segmented. First joint or division of tarsus considerably thicker than the second division and more slender than the tibia; half or a little more than half the length of the latter (17:32.) (Plate **2**, fig. 3).

Length of largest specimen 28 mm.

Locality.— State of Pará: Pará, suburb of Souza! (Mann and Baker).

Three individuals, two adult and one immature, were secured.

Newportia longitarsis (Newport).

Scolopocryptops longitarsis Newport, Trans. Linn. soc. London, 1844, **19**, p. 407, pl. 40, fig. 10.

Newportia longitarsis Gervais, Insect. Aptères, 1847, **4**, p. 298; Humbert et Saussure, Rev. mag. zool., 1869, ser. 2, (**21**), p. 159; Miss. scient. Mex., 1872, p. 138; Pocock, Journ. Linn. soc. London, 1893, **24**, p. 416; Brölemann, Ann. Soc. ent. France, 1903, **67**, p. 251; Kraepelin, Revis. Scolop., 1903, p. 86; Brölemann, Cat. Myr. Brésil, 1909, p. 10.

Locality.— State of Amazonas: Manáos. (sc. Brölemann); Colombia; Central America, etc.

Newportia longitarsis sylvae, subsp. nov.

General color ochre-yellow, most of the dorsal plates being darker, more reddish, along caudal borders. Head darker, of a more ferruginous tinge. Antennae and legs yellowish.

Head deeply and regularly, but not densely, punctate. The paired submedian sulci present only as short impressions at caudal border; a short, wider, transverse furrow, in front of their anterior ends. A rather fine median longitudinal furrow at anterior end.

Antennae composed of from fifteen to seventeen articles, there being in one type specimen fifteen in the right antenna and sixteen in the left, one of those in the latter being, however, of double length and apparently representative of two normal articles. None of the articles shining or glabrous; but the hairs of the first two distinctly more sparse, those of third and fourth more dense, but only the fifth and subsequent articles fully clothed in the usual manner.

Prosternum with anterior margin nearly straight, being a little more

elevated at each ectal end than at middle where it is very slightly notched; edge well chitinized but without true dental plates. Subsparsely punctate.

Cervical furrow of first dorsal plate strictly semicircular, distinctly exposed excepting laterally. Two median longitudinal sulci distinct; parallel excepting toward anterior ends where they diverge somewhat and finally meet the transverse sulcus; not at all branched anteriorly; but near caudal end each is joined by a strictly transverse sulcus which extends out toward lateral margin. Plate semicircularly depressed transversely in middle region near cervical sulcus (Plate **2**, fig. 1). Second dorsal plate with paired sulci extending entirely across length; converging cephalad and near anterior end united with a network of very fine anastomozing transverse lines or sulci (Plate **2**, fig. 1). Other dorsal plates to and including the twenty-second with two distinct and subparallel longitudinal sulci across entire length. The third plate with a fine but distinct straight sulcus running from anterior end of each longitudinal sulcus obliquely caudoectad to the lateral margin (Plate **2**, fig. 1). Plates from the fifth to the twenty-second inclusive with a longitudinal furrow between each longitudinal submedian sulcus and the lateral margin. Last dorsal plate without a median longitudinal furrow. Caudally bowed out, with the extended mesal portion truncate.

Ventral plates with the usual median longitudinal furrow joining the distinct transverse sulcus across the caudal portion of plate but not extending across the anterior portion. Also with a distinct abbreviated longitudinal sulcus on each side convergent with lateral margin. Plates sparsely punctate. Last ventral plate considerably narrowed caudad. Caudal margin moderately incurved at middle. Wider than long in about ratio 34: 29.

Spiracles moderately large; mostly narrower ventrad, roundly subtriangular.

Coxopleurae of twenty-third segment with caudal processes rather short, ending in a single spine-pore area extensive.

Tarsi of anterior legs not distinctly divided. Legs clothed sparsely with stiff bristles, but with no spinules. Tibiae of anterior pairs armed laterally at distal end with a stout spine. Prefemur of anal legs armed ventrally with a row of four stout spines which increase regularly in size distad; on mesal surface with about four irregular series of small bristles and with a similar series on dorsal side near mesal edge and also similar series over ectal surface, also a few scattered longer bristles present, but no true spinules present. Femur

with a stout spine on mesal surface near the proximal end and toward the ventral surface; otherwise unarmed. Other joints, so far as ascertainable from types, bearing rather scattered and short hairs, excepting the tarsi on which they are longer and more dense. Tibia broadly constricted toward each end. First article of tarsus a little more than half as long as the tibia (ratio cir. 17:30); of same thickness as the immediately succeeding articles; the latter distinct and clearly separated from each other. (Plate **2**, fig. 2).

Length cir. 36 mm.

Localities.— State of Matto Grosso: Madeira-Mamore R. R. camps 39 and 41 on the Rio Madeira! (W. M. Mann). One specimen from each locality.

Newportia collaris Kraepelin.

Revis. Scolop. 1903, p. 90.

Localities.— State of Pará: Pará, suburb of Souza! (Mann and Baker); State of Amazonas: Lower Carsevenne, Brazilian Guiana.

This second locality is the type locality and the two are the only ones recorded for the species.

Newportia bicegoi Brölemann.

Rev. Museu Paulista, 1903, **6**, p. 67, pl. I, fig. 1; Kraepelin, Revis. Scolop., 1903, p. 93.

Locality.— State of Amazonas: Manáos.

Otostigmidae.

This tropical and subtropical family is known from Australia, Asia, Africa, and the warmer parts of America. It is represented in the known fauna of Brazil by two genera, Otostigmus, the large typical genus, and Trematophycus.

Otostigmus Porat.

Bih. Svensk. vet. akad. Handl., 1876, **4**, no. 7, p. 18; Meinert, Vid. Medd. nat. foren. Kjøbenhavn, 1884, p. 118; Proc. Amer. philos. soc., 1886, **23**, p. 183; Pocock, Biol. Centr. Amer. Chilopoda, 1895, p. 25; Kraepelin, Revis. Scolop., 1903, p. 97; Verhoeff, Bronn's Thierreich, 1907, **5**, p. 254,

Branchiotrema Kohlrausch, Journ. Mus. Godef., 1878, p. 70; Archiv. naturg., 1881, **47**, 1, p. 70.
Parotostigma Pocock, Biol. Centr. Amer. Chilopoda, 1895, p. 25.

Of this genus nine species are at present known from Brazil, five of these being here described as new.

Key to Species.

a. Tarsal spines wholly absent or, rarely, a few of the legs with a much reduced spine.....*O. limbatus* (Meinert).
aa. Tarsal spines present and distinct.
b. Dorsal plates of caudal half of body distinctly scabrous, bearing rows of fine elevated spinous points.
c. Last ventral plate without distinct median sulcus; only the two proximal articles of the antennae glabrous; with five rather small keels or keel-like elevated lines on dorsal plates of caudal portion of the body...*O. casus*, sp. nov.
cc. Last ventral plate with a distinct median longitudinal sulcus; two and a fourth or two and a half proximal articles of antennae glabrous; only a single, flat, median keel present on dorsal plates.
d. Twentieth legs without a tarsal spine; only one tooth on each dental plate distinct, the others being completely fused; head and first dorsal plate abruptly different in color from the other plates, brownish. *O. rex*, sp. nov.
dd. Twentieth legs with a tarsal spine; each dental plate with four distinct teeth; head and first dorsal plate not abruptly different in color from the other plates, olivaceous.....*O. scabricaudus* Humbert et Saussure.
bb. All dorsal plates smooth, those of the caudal half of the body not distinctly scabrous.
c. First eighteen or nineteen pairs of legs with two tarsal spines.
d. First eighteen pairs of legs with two tarsal spines; twentieth legs with a tarsal spine; dorsal plates with a conspicuously elevated double keel each side of middle, the dorsal sulcus of each side lying between the halves of this keel.....*O. tidius*, sp. nov.

dd. First nineteen pairs of legs with two tarsal spines; twentieth legs with no tarsal spine; dorsal plates without such conspicuous keels or ridges.
O. goeldi Brölemann.

cc. Legs of only the first two to the first six pairs with two tarsal spines or all with but a single tarsal spine.

d. Last dorsal plate in the male ending in a process as long as the plate proper, in the female caudally acutely angular or at least rectangular; ventral plates wholly without furrows or pits.....*O. caudatus* Brölemann.

dd. Last dorsal plate in both sexes simply bowed out caudad, not acutely angular; ventral plates with distinct depressions or pits.

e. Ventral plates from the second to the twentieth with distinct sulci reaching to beginning of caudal third or fourth of length; first six pairs of legs with two tarsal spines; only the first two articles of antennae glabrous.....*O. amazonae*, sp. nov.

ee. Sulci of ventral plates indicated only as short traces at the anterior border; only the first two pairs of legs with two tarsal spines; first three articles of antennae glabrous.
O. tibialis Brölemann.

Otostigmus limbatus Meinert.

Vid. Medd. nat. foren. Kjøbehavn, 1884, p. 120; Karsch, Berl. ent. zeitschr., 1888, **32**, p. 31; Silvestri, Ann. Mus. civ. stor. nat. Genova, 1895, ser. 2, **14**, p. 766; Boll. Mus. zool. anat. comp. R. univ. Torino, 1895, **10**, p. 23; Brölemann, Rev. Museu Paulista, 1901, **5**, p. 37; Kraepelin, Revis. Scolop., 1903, p. 130; Cat. Myr. Brésil, 1909, p. 13.

Localities.— "Brazil" (sec. Meinert; spec. Mus. Copenhagen); State of São Paulo: Alto da Serra, Santos.

This species is also known from Paraguay, from where two of Meinert's typical specimens came, and from Argentina (Buenos Aires).

Otostigmus amazonae, sp. nov.

Bluish green to olive-brown; with a fine median longitudinal pale line. Head distinctly darker, deeper green. Antennae bluish green

proximally, paler distad. Legs more pigmented distally than proximally; the posterior pairs green or bluish green excepting toward base.

Head shining; punctae weak and more or less scattered. The usual two longitudinal furrows of the caudal portion, these being shallow.

Antennae composed of seventeen articles of which only the first two are glabrous.

Prosternal teeth 4–4 of which the outermost on each side is more remote and is separated by a deeper interval than the others are from each other; innermost tooth on each side smallest, the two intermediate ones of nearly equal size.

Dorsal plates from the fourth segment on distinctly bisulcate. Only the twenty-first plate truly margined but the others of the posterior half of the body especially, with submarginal longitudinal furrows or depressions which simulate true margination. Plates, wholly smooth and with no indication on any of a median keel. Last plate more or less angularly produced, the margin bent in on each side of the middle (Plate 3, fig. 2); with no developed sulci or pits, the plate somewhat longitudinally elevated along the median line and faintly depressed or furrowed along the middle of this.

Ventral plates from second to twentieth with two longitudinal sulci extending to caudal third or fourth of length where each at its end is more deeply impressed. A short pit-like, median, depression in front of the caudal margin and a less pronounced median depression farther cephalad. Last ventral plate convex. Strongly narrowed caudad; caudal margin mesally excised. With a weak median sulcus and also on each side a faint fine sulcus from anterior margin to near middle (Plate 3, fig. 1).

Coxopleurae not produced, being caudally simply rounded; unarmed.

First six pairs of legs with two tarsal spines; the seventh to nineteenth with one; twentieth legs with none. Anal legs wholly unspined, being smooth throughout.

Length 23 and 32 mm.

Locality.— State of Amazonas: Manáos! (Mann and Baker).

Two specimens were secured.

This species seems to be related to *O. limbatus* Meinert, but is very easily separated through the differences in the spining of the tarsi as indicated in the key.

Otostigmus suitus, sp. nov.

Color olive-green with some of the dorsal plates appearing darker along the caudal margin. Antennae more brownish excepting at base.

Head distinctly punctate. Marked in front of caudal margin with two short longitudinal furrows.

Antennae seventeen jointed.[1] First two or two and a half articles glabrous (the third in type partially rubbed so that precise extent of glabrous condition is uncertain); other articles clothed densely with the usual short brown hairs.

Dorsal plates from the fourth, inclusive, caudad with two distinct median sulci; a longitudinal depression or furrow on each side, but true margination present only on the twenty-first plate, plates mostly depressed between median sulci and with a weakly developed median keel indicated on plates from the third caudad; the surface and edges of plates wholly smooth. Last dorsal plate with posterior margin bowed moderately caudad. A median pit-like depression in front of caudal margin and a keel in front of this as on the other plates. (Plate 3, fig. 4).

Prosternum with 4+4 teeth of which the second from the mesal incision on each side is the largest, the third being next.

Ventral plates without a trace of longitudinal sulci. Each with three distinct, pit-like, or more or less longitudinal, impressions arranged in a triangle with the apex cephalad, and with three short longitudinal impressions in a transverse row in front of the caudal margin. Last ventral plate strongly narrowed caudad. Truncate caudad with the corners a little rounded. Impressed with a distinct median longitudinal furrow. (Plate 3, fig. 3).

Coxopleurae of last legs without any true process, being a little roundly extended caudad; without any spines.

Length cir. 55 mm.

Locality.— State of Matto Grosso: Madeira-Mamore R. R. camp 41, on the Rio Madeira! (W. M. Mann).

One specimen was secured.

[1] On one side of type specimen there are but thirteen articles in the antenna, this being due, apparently, to breaking off of the antenna with subsequent regeneration of the distal article.

Otostigmus tidius, sp. nov.

Brown, of more or less ferruginous tinge caudad and also being darker cephalad; plates mostly darker along caudal edges. Antennae very dark.

Head finely densely punctate. With no true sulci; but on the anterior portion an unusually deep median longitudinal furrow and also a similar one caudad of the middle with on each side of the latter a short, more shallow, furrow diverging from it cephalad.

Antennae composed of seventeen articles of which the first two are glabrous.

Prosternal teeth 4+4; the three innermost on each side nearly on a level and about equal in size, but the most ectal one situated more proximad, being at about the middle of lateral edge of dental plate. Process of first joint of prehensors notched or toothed on mesal side below apex. (Plate 2, fig. 6).

All dorsal plates with a distinct median longitudinal furrow, on each side of which, in most of the plates, there is a double longitudinal ridge between the two edges or keels of which lies the longitudinal sulcus of the corresponding side. Ectad of this double keel there is a much lower, often indistinct, keel. Plates longitudinally deeply fluted or furrowed along each lateral nargin, producing the appearance of margination; but only the twenty-first plate truly margined. The keels are not well indicated on the first three or four plates. The median sulci are distinct from the fourth or fifth plates caudad. Last plate with caudal edge moderately bowed caudad. The median furrow distinct. An elevation or ridge each side of the middle divided by a weak furrow corresponding to that on the more anterior plates. (Plate 2, fig. 7).

Ventral plates with indications of the longitudinal sulci over the anterior portion, but the traces very short. Without any distinct pits or similar depressions. Last ventral plate strongly narrowed caudad. Caudally convexly rounded, not at all mesally incurved. A rather fine median longitudinal furrow present. (Plate 2, fig. 8).

Coxopleurae without true processes; but a little extended caudad, the corner being well rounded.

The first to the eighteenth pairs of legs with two tarsal spines, but the lateral spine on the eighteenth minute and that of the seventeenth intermediate in size. Nineteenth and twentieth legs with but a single tarsal spine.

Length cir. 14.5 mm.

Locality.— State of Amazonas: Manáos! (Mann and Baker). One specimen.

Otostigmus rex, sp. nov.

Dorsum, excepting the first plate, dark olive, the plates somewhat paler along the caudal borders. Head and first dorsal plate conspicuously and abruptly different in color, being clear brown or somewhat testaceous, the head darker in middle region and in a narrow band running ecto-caudad on each side. Antennae and anal legs conspicuously rosaceous in color, the pairs of legs immediately preceding the last more weakly tinged with this color; other legs very pale clear brownish, weakly tinged with greenish. Prosternum clear brown. Venter similar to legs, darkest anteriorly.

Cephalic plate punctate the punctae very fine and rather weak.

Antennae composed of seventeen articles of which the first two and a half are glabrous and shining.

Prosternum with each dental plate bearing a distinctly separated tooth at each ectal end; but with the other teeth thoroughly fused into a continuous plate with no or but obscure traces of the separate ones. The longitudinal sulcus between the two plates of moderate depth.

Dorsal plates from the sixth on with very fine paired longitudinal sulci extending entire length of plate. From the third plate caudad there are longitudinal depressions mesad of each lateral margin which become deeper in caudal region and thus more sharply separating off the edge or simulating margination. From the third plate caudad a flat median keel is indicated, this on the anterior plates being obscure but posteriorly becoming more distinctly set off by the deepening of the limiting furrows on each side of it. Plates, especially the more caudal ones, rugose in the lateral depressions, the anterior ones otherwise smooth; but the posterior plates, and especially the last five or six, while appearing to the naked eye rather smooth, under the lens are seen to be finely scabrous, bearing over the entire surface, including edges and keel, rows of small, elevated, spinous points. Last dorsal plate bowed out caudad, the extended portion convexly rounded. In front of mesal portion of caudal edge a conspicuous and deep, pit-like, depression from the anterior edge of which a median keel runs cephalad across the plate; surface finely scabrous as on the other plates.

Ventral plates without longitudinal sulci. From the third or, more

indistinctly, the second to the twentieth plate with three pits, mostly deep and distinct, arranged in the form of a triangle with the median one cephalad, the three more or less clearly connected by more shallow depressions giving sometimes the appearance of a single V- or U-shaped impression. In addition there is a transverse row of three pit-like depressions in front of the caudal margin as in various related species, these pits on some of the more caudal plates lying in a more or less distinct transverse furrow. Last ventral plate long; conspicuously narrowed caudad; truncate or slightly inbent at the middle. A distinct longitudinal median sulcus across the entire length.

Coxopleurae very slightly extended at mesocaudal corners, where they are wholly unarmed.

First legs with two tarsal spines. Second to nineteenth pairs of legs with a single tarsal spine; twentieth pair with no tarsal spine. Anal legs of moderate length. Prefemur clavately widening from base distad. Wholly smooth.

Length cir. 78 mm.

Locality.— State of Matto Grosso: Madeira-Mamore R. R. camp, 39, on the Rio Madeira! (Mann and Baker).

One specimen.

This species lies in the group of forms closely allied with *scabricaudus* in which the females are not easily distinguishable. The coloration of the present species is of a characteristic type similar to that of some Scolopendras and also present in *O. caudatus* and in several African species of this genus; in these forms the head and first dorsal plate being abruptly and conspicuously different in color from the rest of the dorsum. The species also differs from *scabricaudus* in being less strongly scabrous, in having no tarsal spine on the twentieth legs, in having a larger proportion of the third antennal article glabrous, and in having all the teeth excepting the most ectal on each side of the prosternum thoroughly fused together. The type is larger than the maximum measurement recorded for *scabricaudus* (70 mm.).

Otostigmus casus, sp. nov.

Olive-green in color above, brighter along the caudal margins of plates. Head more brown. Antennae brown of greenish caste, the first two articles clearer green. Legs pale brown of dilute greenish tinge. Venter lighter olive, the last ventral plate and the coxopleurae more brownish. Prosternum light greenish brown.

Head subdensely punctate, the punctae being moderately fine and not sharply impressed or limited.

Antennae composed of seventeen articles of which the first two are glabrous and shining, the others being densely pubescent as usual.

Dorsal plates from the fifth to the twentieth with the two longitudinal sulci present and complete; fine. Lateral portions of plate from the fifth caudad depressed leaving the lateral margin distinctly elevated, especially in the middle and caudal regions, but true margination present only on the twenty-first plate. The depressed lateral portion of the plate rugose, the main rugae being longitudinal. The elevated margins, the rugae, and, less extensively, the intermediate surface, roughened with series of numerous spinulose points. From the fifth or sixth plates on a median longitudinal keel is indicated, this being at first obscure but becoming more and more distinct caudad, while at the same time on each side of it and just mesad of the sulcus appears another keel, the three keels being distinct on the caudal segments; the keels are scabrous like the lateral portions of the plates. Last dorsal plate with the posterior edge moderately bowed out caudad and mesally truncate. With three longitudinal keels corresponding to those of the other plates extending from the anterior margin caudad two thirds the length of the plate, the plate caudad of their ends having a shallow pit-like depression. Keels and general surface scabrous.

Sulci of ventral plates detectable only as very short traces at the anterior border of each. With three pit-like depressions arranged in a triangle as usual, these being of but moderate depth and size and not coalesced. In addition there are three other depressions along the caudal border separated from those of the triangle by a distinct transverse sulcus. On some of the more caudal plates the anterior median pit may be extended a considerable distance caudad as a median furrow. Last ventral plate conspicuously narrowed caudad, the sides being convex at anterior ends but straight for most of their length. Caudal margin with lateral halves straight and meeting in the middle in a slightly reentrant angle. No distinct median sulcus present.

Coxopleurae a little extended caudad at caudomesal corners which are simply rounded, no distinct process being developed, wholly unarmed.

Only the first pair of legs with two tarsal spines. Second to eighteenth pairs with a single tarsal spine. Nineteenth to twenty-first pairs unknown, being absent from the only specimen known.

Length 57 mm.

Locality.— State of Matto Grosso: Madeira-Mamore R. R. camp 39, on the Rio Madeira! (W. M. Mann).

One specimen.

Otostigmus goeldi Brölemann.

Ann. Soc. ent. France, 1898, **67**, p. 249, pl. 20, fig. 2; Kraepelin Revis. Scolop., 1903, p. 128; Brölemann, Cat. Myr. Brésil, 1909, p. 12.

Locality.— State of Para: Para (sec. Brölemann).

Otostigmus scabricaudus (Humbert and Saussure).

Branchiostoma scabricauda Humbert et Saussure, Rev. mag. zool., 1870, p. 203; Saussure et Humbert, Études Myr., 1872, p. 121, pl. 2, fig. 15, etc.; Kohlrausch, Archiv. naturg., 1881, **47**, 1, p. 75.

Otostigmus appendiculatus Porat, Bih. Svensk. vet. akad. Handl., 1876, **4**, p. 23.

Otostigma brasiliense Meinert, Vid. Medd. nat. foren, Kjøbenhavn, 1884, p. 119.

Otostigmus brasilicnsis Karsch, Berl. ent. zeitschr., 1888, p. 31.

Otostigmus scabricaudus Pocock, Ann. mag. nat. hist., 1890, ser. 6, **6**, p. 142, Brölemann, Mem. Soc. zool. France, 1900, **13**, p. 96; Rev. Museu Paulista, 1901, **5**, p. 40; Kraepelin, Revis. Scolop., 1903, p. 126, fig. 61; Brölemann, Cat. Myr. Brésil, 1909, p. 13.

Localities.— State of Bahia: Bahia; State of Minas Geraes; State of Rio de Janeiro: Rio de Janeiro (type locality), Rio Espirito Santo; State of São Paulo: Alto da Serra, Piquete.

Otostigmus caudatus Brölemann.

Rev. Mus. Paulista, 1901, **5**, p. 39, pl. 1, fig. 1–3; Kraepelin Revis. Scolop., 1903, p. 132, fig. 71, 72; Brölemann, Cat. Myr. Brésil, 1909, p. 12.

Localities.— State of São Paulo: São Paulo, Belém, Alto da Serra, Itapetininga.

Otostigmus tibialis Brölemann.

Rev. Mus. Paulista, 1901, **5**, p. 39, fig. 4, 5.
Otostigmus caudatus tibialis Kraepelin, Revis. Scolop., 1903, p. 132, fig. 73, 74.
Otostigmus caudatus Brölemann, Cat. Myr. Brésil, 1909, p. 13.

Localities.— State of São Paulo: São Paulo, Piquete, Alto da Sérra, Santos; State of Parana.

Trematophycus Peters.

Reise Mozambique, 1862, **5**, p. 519.
Branchiostoma Newport (*nom. preocc.*) Trans. Linn. soc. London, 1844, **19**, p. 411; Meinert, Proc. Amer. philos. soc., 1886, **23**, p. 182.
Ptychotrema Peters (*nom. preocc.*), Monatsb. Berl. akad., 1855, p. 82.
Rhysida Wood, Journ. Acad. nat. sci. Phil., 1862, ser. 2, **5**, p. 40; Pocock, Ann. mag. nat. hist., 1891, ser. 6, **7**, p. 58; Kraepelin Revis. Scolop., 1903, p. 139; Verhoeff, Bronn's Thierreich, 1907, **5**, p. 57.
Ethmophora Pocock, Ann. mag. nat. hist., 1891, ser. 6, **7**, p. 58.

Of this genus three species are at present known from Brazil, and a fourth is practically certain to occur there and is accordingly introduced into the following key.

Key to Species.

a. At least some of the dorsal plates with the paired submedian sulci crossing entire length of plate.
   b. Only the twenty-first dorsal plate margined; prefemur of anal leg with one (or two) ventral spines.
      T. nudus (Newport).
   bb. Some of the dorsal plates cephalad of the twenty-first also distinctly margined.
      c. Prefemur of the anal legs wholly unarmed; process of coxopleurae short, subtriangular, without lateral spines.
         T. celeris (Humbert and Saussure).
      cc. Prefemur of anal legs armed with eight to thirteen spines; process of anal coxopleurae long, with one or two lateral spines in addition to the terminal ones.
         T. longipes (Newport).
aa. None of the dorsal plates with sulci crossing its entire length, these appearing at most as short traces at ends of plates. Prefemur of anal legs wholly unspined.
   T. brasiliensis (Kraepelin).

Trematophycus nudus (Newport).

Branchiostoma nudum Newport, Trans. Linn. soc. London, 1844, **19**, p. 412.
Branchiostoma gymnopus Kohlrausch, Arch. naturg., 1881, **47**, p. 67.
Branchiostoma gymnopus ceylonicum Haase, Abhandl. Mus. Dresden, 1887, **5**, p. 86.
Rhysida immarginata var. Pocock, Biol. Centr. Amer. Chilopoda, 1896, p. 26.
Rhysida nuda Kraepelin, Revis. Scolop., 1903, p. 144.

Locality.— While not specifically recorded from Brazil, it is distributed widely in Mexico and Central America as well as in Paraguay, so that its occurrence in Brazil is practically certain.

Trematophycus longipes (Newport).

Branchiostoma longipes Newport, Trans. Linn. soc. London, 1844, **19**, p. 411; Haase, Abhandl. Mus. Dresden, 1887, **5**, p. 84.
Branchiostoma obsoletum Porat. Bih. Svensk. vet. akad. Handl., 1876, **4**, no. 7, p. 25.
Branchiostoma gracile Kohlrausch, Archiv naturg., 1881, **47**, 1, p. 66.
Branchiostoma affine Kohlrausch, Ibid., p. 67.
Branchiostoma longipes rotundatum Haase, *loc. cit.*
Rhysida longipes Pocock, Biol. Centr. Amer. Chilopoda, 1896, p. 27; Kraepelin, Revis. Scolop., 1903, p. 148, fig. 91; Brölemann, Cat. Myr. Brésil, 1909, p. 14.

Localities.— "Brazil" (M. C. Z. coll.; also W. M. Mann, without precise locality); State of Bahia.

Trematophycus celeris (Humbert and Saussure).

Branchiostoma celer Humbert et Saussure, Rev. mag. zool., 1876, ser. 2, **22**, p. 202; Kohlrausch, Arch. naturg., 1881, **47**, 1, p. 69, Meinert, Proc. Amer. philos. soc., 1886, **23**, p. 183.
Rhysida celeris Silvestri, Mus. zool. anat. comp. R. univ. Torino, 1895, **10**, p. 23; Pocock, Biol. Centr. Amer. Chilopoda, 1896, p. 27; Kraepelin, Revis. Scolop., 1903, p. 149; Brölemann, Cat. Myr. Brésil, 1909, p. 14.

Localities.— State of Matto Grosso: Madeira-Mamore R. R. camp 39, on the Rio Madeira!, Abuná, Bolivia! (W. M. Mann); State of Rio Grande do Norte: Ceará-Mirim! (Mann and Heath. The specimen from this locality variant).

Trematophycus brasiliensis (Kraepelin).

Rhysida brasiliensis Kraepelin, Revis. Scolop., 1903, p. 152, fig. 95, 96.

Localities.— State of Minas Geraes; State of Rio de Janeiro: Rio Espirito Santo.

Scolopendridae.

Of this family the genera Scolopendropsis, Cupipes, Cormocephalus (probably introduced), Hemiscolopendra, and Scolopendra are known in the Brazilian fauna.

Scolopendropsis Brandt.

Bull. sci. Acad. imper. sci. St. Peterburg, 1840, **7**, p. 24; Kraepelin Revis. Scolop., 1903, p. 179; Verhoeff, Bronn's Thierreich, 1907, **5**, p. 50.
Rhoda Meinert, Proc. Amer. philos. soc., 1886, **23**, p. 188.
Pithopus Pocock, Ann. mag. nat. hist., 1891, ser. 6, **7**, p. 223; Kraepelin, Revis. Scolop., 1903, p. 171; Verhoeff, Bronn's Thierreich, 1907, **5**, p. 259.

Two species, the only valid ones known, occur in Brazil.

Scolopendropsis bahiensis Brandt.

Bull. sci. Acad. imper. sci. St. Peterburg, 1840, **7**, p. 24; Kraepelin, Revis. Scolop., 1903, p. 171; Brölemann, Cat. Myr. Brésil, 1909, p. 31.
Rhoda thayeri Meinert, Proc. Amer. philos. soc., 1886, **23**, p. 188.
Pithopus inermis Pocock, Ann. mag. nat. hist., 1891, ser. 6, **7**, p. 223, pl. 5, f. 5; Kraepelin, Revis. Scolop., 1903, p. 172.
Scolopendropsis thayeri Brölemann, Cat. Myr. Brésil, 1909, p. 32.

Localities.— State of Bahia: Bahia, Iguarassu (the type locality of *inermis* (Pocock)). State of Para: Santarem (the type locality of *thayeri* (Mein.)).

Kraepelin suggests the identity of *thayeri* Meinert with *calcaratus* Pocock; but an examination of the type of *thayeri* shows that it is the same as the *inermis* of Pocock and that both are the same as Brandt's *bahiensis* which has long priority. Through probable error twenty-three pairs of legs were attributed to Brandt's species, although the not very probable suggestion has been made that the species is dimorphic, having some individuals with twenty-three and others with twenty-one pairs of legs.

Scolopendropsis calcaratus (Pocock).

Pithopus calcaratus Pocock, Ann. mag. nat. hist., 1891, ser. 6, **7**, p. 224, pl. 5, fig. 3.

Scolopendropis calcaratus Brölemann, Ann. Soc. ent. France, 1902, **71**, p. 651; Cat. Myr. Brésil, 1909, p. 32.

Localities.— State of Bahia: Bahia (type locality), Santo Antonio da Barra; State of Rio Grande do Norte: Natal! (W. M. Mann). Ceará-Mirim! (Mann and Heath).

Cupipes Kohlrausch.

Archiv. naturg. 1881, **47**, 1, p. 78; Kraepelin, Revis. Scolop., 1903, p. 174; Verhoeff, Bronn's Thierreich, 1907, **5**, p. 260.

Key to Species.

a. Femur or second joint of anal legs armed dorsally at distal end with two bifid spines, one on each side of the longitudinal furrow. *C. brasiliensis* Humbert and Saussure.

aa. Femur of anal legs unarmed.

b. Only the twenty-first dorsal plate distinctly margined.

c. Most legs with a tarsal spine; last ventral plate parallel sided, not narrowed caudad. . . . . *C. spinifer* Kraepelin.

cc. All legs without tarsal spines; last ventral plate narrowed caudad.

d. Prefemur of anal legs with about five to eleven spines distributed over its surface. . . . *C. ungulatis* Meinert.

dd. Prefemur with only two spines, these being those at dorsomesal angle of distal end. *C. ungulatis mitis* Brölemann.

bb. Plates from seventh to tenth caudad also margined as well as the twenty-first.

c. Coxopleura with a short but distinct process at mesocaudal corner (Plate **2**, fig. 9); each dental plate of prosternum with an elongated ectal process and a single mesal tooth at base of this (Plate **3**, fig. 5); head distinctly longer than wide. . . . . *C. amazonae*, sp. nov.

cc. Coxopleura with no such process, simply rounded at mesocaudal angle (Plate **3**, fig. 8); each dental plate with four subsimilar teeth of the usual form (Plate **3**, fig. 7); head equal in length and breadth. . . . . *C. neglectus*, sp. nov.

Cupipes brasiliensis (Humbert and Saussure).

Cormocephalus brasiliensis Humbert et Saussure, Rev. mag. zool., 1870, ser. 2, **22**, p. 203; Saussure et Humbert, Etude Myr. 1872, p. 124, pl. 6, fig. 17.
Cupipes brasiliensis Brölemann, Cat. Myr. Brésil, 1909, p. 8.

Locality.— Brazil.

This species was regarded, doubtfully, as the same as *C. ungulatis* Meinert by Meinert as well as by Kraepelin. But, as pointed out by Brölemann, and as indicated in the key above, the presence of the dorsal spines on the second joint of the anal legs seems clearly to separate *brasiliensis* from Meinert's species. At any rate, until the Brazilian fauna is better known, or specimens of *ungulatis* are shown to present the important variation mentioned, it would be quite premature to ignore this characteristic.

Cupipes spinifer Kraepelin.

Revis. Scolop., 1903, p. 177, fig. 117.

Locality.— State of Pará: Pará (type locality).

Known from a single specimen in the Hamburg Museum.

Cupipes ungulatis Meinert.

Proc. Amer. Philos. soc., 1886, **23**, p. 187; Brölemann, Rev. Museu Paulista, 1903, **6**, p. 64; Cat. Myr. Brésil, 1909, p. 9.

Localities.— State of Pernambuco: Pernambuco! (type locality); State of Amazonas: Manáos (sec. Brölemann).

Cupipes ungulatis mitis Brölemann.

Rev. Museu Paulista, 1903, **6**, p. 65; Cat. Myr. Brésil, 1909, p. 9.

Locality.— State of Amazonas: Manáos (type locality).

This and the preceding form are known at present from too few specimens to be able properly to judge of their precise relationship. Considerable variation has already been noted in the spining of the prefemur of *C. ungulatis;* and it may prove not possible to segregate the forms on the basis of this character.

Cupipes amazonae, sp. nov.

Dorsum olive or olive-brown; most of the plates of the middle and anterior regions of body with a blackish spot or short stripe at each lateral margin; in the plates of the median region also a dark spot on caudal border at caudal end of each sulcus or the two spots may be united as a transverse band. Head darker, more brownish and dusky. Antennae bright green. Prosternum and prehensorial feet clear brown, the latter rufous laterally and especially distally proximad of the black claw proper.

Head clearly longer than wide (46:41). Sides a little convex just behind the eyes and then substraight and a little converging to the caudal corners. Finely and uniformly subdensely punctate. The two diverging longitudinal sulci reaching or very nearly reaching the anterior margin, each terminating in a transverse sulcus slightly removed from the edge of antennal socket with which it runs parallel.

Antennae composed of seventeen articles of which the first seven are glabrous or practically so and in this respect sharply separated from the more distal group.

Prosternum with two sharply defined longitudinal sulci converging cephalad and uniting at an angle at anterior end; these sulci crossed by a transverse sulcus which is branched and has anastamoses as shown in Plate 3, fig. 5. Dental plate without true teeth, but bearing an elongate ectal process with on mesal side at base a low, dark, dentiform elevation (Plate 3, fig. 5); on one side the plate is malformed as shown in the figure, this probably being due to injury with imperfect subsequent regeneration.

Margination of the dorsal plates indicated from about the seventh caudad but not very distinctly until the tenth. Plates with an obscure low median keel defined by two indistinct longitudinal furrows; also a vague furrow laterad of each median sulcus may be indicated. Last dorsal plate with a sharply impressed median longitudinal sulcus.

Second to twentieth ventral plates with the usual two longitudinal sulci crossing the plate. A rather vague transverse furrow may be traced at the level of the legs; while on some plates indications of a very weak median longitudinal furrow may be detected. Last ventral plate clearly wider at its anterior end than long (2.6:2). Sides strongly converging caudad; plate truncate caudad, the corners a little rounded. Without a median sulcus or furrow. (Plate 2, fig. 9).

Coxopleurae with a short but distinct process at mesocaudal corner,

the process bearing two spines; not spined on coxopleural margin laterad of the process proper. Porose area not fully reaching the caudal margin. (Plate 2, fig. 9).

Anal legs with articles proximad of the tarsus much thickened, especially from side to side as usual. Prefemur and especially the femur deeply longitudinally furrowed dorsally at distal ends. Prefemur with a distinct spine at mesodistal angle on dorsal side; two small spines near upper edge of mesal surface and three more ventral, two being at the distal end ventrad of the corner spine and one toward the proximal end; in addition there are four strictly ventral spines, two in each of two rows. Femur wholly unarmed.

Length cir. 43 mm.

Locality.— State of Amazonas: Manáos! (Mann and Baker).

One specimen.

Cupipes neglectus, sp. nov.

Dorsum brown. Head olivaceous. Antennae bluish green. Legs pale.

Head equal in length and breadth. Sulci distinct, diverging cephalad and each reaching the margin at the eye. Punctae scattered.

Antennae composed of seventeen articles. In the type the antennae are considerably rubbed; but apparently the first article is wholly glabrous and the second one nearly so, the third and fourth with an intermediate number of hairs and the fifth and subsequent ones with the full complement.

Prosternum with two longitudinal submedian sulci which meet at an angle anteriorly; not crossed by any distinct transverse lines. Dental plates bearing 4+4 teeth which are of normal form and long and acute; the two intermediate teeth on each side longest; the most ectal tooth situated distinctly more proximad (Plate 3, fig. 7).

Dorsal plates margined from the eighth or ninth segment caudad, the margination becoming more and more distinct in going toward the caudal end. Sulci continuous and very distinct on all the plates excepting the last. First to third plates with a median longitudinal furrow; the fourth plane; those from the fifth caudad with a low median longitudinal keel which is flat and set off by two shallow furrows in the usual way. Last dorsal plate with a sharply impressed median longitudinal sulcus.

Ventral plates from the second to the twentieth distinctly bisulcate. Some of the plates showing an indistinct median depression on caudal

portion. Last ventral plate narrowed caudad; sides straight; caudal margin also straight. A little wider across anterior end than long (ratio cir. 39:37). With a rather weak median longitudinal sulcus.

Coxopleurae of last legs not at all produced caudad. Bearing one or two closely approximate spines at mesocaudal angle; none ectad of this. Porose area not reaching caudal margin by a considerable distance.

Length of the two types 26 and 55 mm. respectively.

Joints of the anal legs proximad of the tarsus strongly crassate as usual. The first three joints longitudinally dorsally sulcate, the sulci most distinct at distal ends and on the first two joints. Spines of prefemur very small and difficult to detect; two present close together on dorsomesal corner of distal end; a single one in line with the preceding two farther cephalad and three on the mesal surface were detected. First twenty pairs of legs without tarsal spines.

Locality.— State of Matto Grosso: Madeira-Mamore R. R. camp 39, on the Rio Madeira! (W. M. Mann).

Two specimens.

Evidently this species is related to *C. impressus* (Porat); but it may be distinguished in having the cephalic plate equal in length and breadth instead of distinctly longer (ratio 4:3), by having the last ventral plate with a median longitudinal furrow, by having fewer articles of the antennae glabrous and these less abruptly differentiated from the others, etc.

Cormocephalus Newport.

Trans. Linn. soc. London, 1844, **19**, p. 275, 419; Meinert, Proc. Amer. philos. soc., 1886, **23**, p. 205; Kraepelin, Revis. Scolop., 1903, p. 184; Verhoeff, Bronn's Thierreich, 1907, **5**, p. 262.

Rhombocephalus Newport (in part) Trans. Linn. soc. London, 1844, **19**, p. 275, 425.

This is a typically Australian, Indian, and African genus, the single species recorded from America having probably been introduced from ships.

Cormocephalus aurantiipes (Newport).

Scolopendra aurantiipes Newport, Ann. mag. nat. hist., 1844, **13**, p. 99.

Scolopendra subminiata Newport, Ibid., p. 100.

Cormocephalus aurantiipes Newport, Trans. Linn. soc. London, 1844, **19**, p. 420;

Haase, Abhandl. Mus. Dresden, 1887, **5**, p. 57; Kraepelin, Revis. Scolop., 1903, p. 197; Brölemann, Cat. Myr. Brésil, 1909, p. 7.
Cormocephalus obscurus Newport, Loc. cit., p. 420.
Cormocephalus subminiatus Newport, Loc. cit., p. 420.
Cormocephalus miniatus Newport, Loc. cit., p. 420.
Rhombocephalus brevis Newport, Loc. cit., p. 426.
Scolopendra obscura Gervais, Insect. Aptères, 1847, **4**, p. 272.
Scolopendra miniata Gervais, Ibid.
Scolopendra subminiata Gervais, Ibid.
Scolopendra brevis Gervais, Ibid.
Cormocephalus gracilis Kohlrausch, Archiv. naturg., 1881, **47**, 1, p. 86.
Cormocephalus pygometas Kohlrausch, Ibid., p. 90.
Cormocephalus aurantiipes spinosus Haase, Loc. cit., p. 58.

Localities.— State of Rio de Janeiro: Rio de Janeiro! M. C. Z.; Brazil (without more definite locality, recorded as *C. gracilis* and *C. pygomelas* by Kohlrausch.) Reported also from Guatemala by Pocock.

Hemiscolopendra Kraepelin.

Revis. Scolop., 1903, p. 212; Verhoeff, Bronn's Thierreich, 1907, **5**, p. 261.

Hemiscolopendra laevigata (Porat).

Cormocephalus laevigatus Porat, Bih. Svensk. vet. akad. Handl., 1876, **4**, no. 7, p. 17.
Scolopendra cormocephalina Kohlrausch, Archiv. naturg., 1881, **47**, 1, p. 123.
Scolopendra longispina Meinert, Proc. Amer. philos. soc., 1886, **23**, p. 199; Brölemann, Cat. Myr. Brésil, 1909, p. 19.
Scolopendra appendiculata Daday, Termes, füzetek., 1891, **14**, p. 152.

Localities.— State of São Paulo: Belém.

Scolopendra Linné.

Syst. nat. ed. 10, 1758, **4**, p. 637; Newport, Trans. Linn. soc. London, 1844, **19**, p. 275, 377; Latzel, Myr. Ost.-Ung. monarch., 1880, **1**, p. 137; Meinert, Proc. Amer. philos. soc., 1886, **23**, p. 190; Vid. Meddl. nat. foren. Kjøbenhavn, 1886, p. 125; Kraepelin, Revis. Scolop., 1903, p. 223; Verhoeff, Bronn's Thierreich., 1907, **5**, p. 263.

Eight valid species, one of them new, are recognized in this paper as occurring in Brazil. Brölemann lists *S. viridis* Wood as occurring

in Brazil, fide Meinert; but a reference to the paper cited fails to reveal any record of the species from the country by the latter author and the species is accordingly here omitted. The names falling as synonyms in this genus are very numerous. The known Brazilian species may be separated by means of the following key.

Key to Species.

a. First dorsal plate with a deeply impressed transverse cervical sulcus which may be nearly covered by the head.

b. Prefemur of the twentieth legs (as also sometimes of some of the immediately preceding pairs) armed on dorsal side at distal end one to several spines; prosternum with a fine sulcus across anterior portion.

c. Dorsal plates from the sixth or seventh caudad distinctly margined laterally.

d. At least eight or ten basal articles of the antennae glabrous, the others finely pubescent, the hairs not in rows; coxopleural process with nine spines or points.....*S. gigantea* Linné.

dd. Only four or five basal articles of antennae glabrous; hairs of the others often in streaks or rows; points of the coxopleural process fewer.

e. Ventral plates without longitudinal sulci; margination of dorsal plates beginning at seventh segment; femur of twentieth and also of nineteenth legs with one or two spines at distal end above.

S. angulata Newport.

ee. Ventral plates of second to twentieth segments with two deep longitudinal sulci crossing the entire length of plate; margination of dorsal plates beginning with the fifth; femur of twentieth legs lacking spine at distal end above.

S. viridicornis Newport.

cc. Margination of dorsal plates beginning only with the eleventh to fourteenth segment.

Four basal articles of antennae glabrous, the others densely pubescent; none of dorsal plates with sulci passing across entire length; claw of anal legs with two minute basal spines.....*S. explorans*, sp. nov.

bb. Prefemur of twentieth legs not at all armed at distal end above; prosternum with no transverse sulcus across entire width of anterior portion.

Head wholly without longitudinal sulci; last dorsal plate with a median longitudinal sulcus; antennae composed of from twenty-five to thirty-one articles of which the eighth to seventeenth proximal ones are glabrous.

S. polymorpha Wood.

aa. First dorsal plate without any such deeply impressed transverse cervical sulcus.

b. Prefemur of nineteenth and twentieth pairs of legs armed dorsally at distal end with from one to six spinous teeth; head with longitudinal sulci.....*S. alternans* Leach.

bb. Prefemur of nineteenth and twentieth pairs of legs unarmed at distal end above; head without longitudinal sulci.

c. Prefemur of anal legs armed ventrally with from six to nine spines; last dorsal plate with a fine median longitudinal sulcus.....*S. morsitans* Linné.

cc. Prefemur of anal legs with only three, or less, ventral spines or sometimes (in varieties) with none; last dorsal plate without a median sulcus.....*S. subspinipes* Leach.

Scolopendra gigantea Linné.

Syst. nat. ed. 10, 1758, **1**, p. 638; Kraepelin, Revis. Scolop., 1903, p. 233; Brölemann, Cat. Myr. Brésil, 1909, p. 17.

Scolopendra gigas Leach, Trans. Linn. soc. London, 1814, **11**, p. 383; Meinert, Proc. Amer. philos. soc., 1886, **23**, p. 191.

Scolopendra insignis Gervais et Goudot, Ann. Soc. ent. France, 1844, **2**, p. 29.

Scolopendra prasinipes Wood, Proc. Acad. nat. sci. Phil., 1862, p. 11.

Scolopendra epileptica Wood, Ibid.

Scolopendra annulipes Lucas, Bull. Soc. ent. France, 1884, ser. 6, **4**, p. 74; Brölemann, Cat. Myr. Brésil, 1909, p. 18.

Localities.— State of Amazonas: Obidos! James and Hunnewell, Nathaniel Thayer expedition. M. C. Z.; State of Para: Santarem! (Chas. Linden, M. C. Z.); State of Pernambuco: Villa Bella! (J. C. Fletcher; M. C. Z.). Lucas's type of *S. annulipes* was also from Brazil, the definite locality not being indicated.

Scolopendra angulata Newport.

Ann. mag. nat. hist., 1844, **13**, p. 97; Pocock, Journ. Linn. soc. London, 1893, **24**, p. 146; Brölemann, Cat. Myr. Brésil, 1909, p. 17.
Scolopendra puncticeps Wood, Proc. Acad. nat. sci. Phil., 1862, p. 14.
Scolopendra punctiscuta Wood, Ibid.
Scolopendra prasina C. L. Koch, Myr. 1864, **2**, p. 23, fig. 146; Meinert, Proc. Amer. philos. soc., 1886, **23**, p. 192.
Scolopendra nitida Porat, Bih. Svensk. vet. akad. Handl., 1876, **4**, no. 7, p. 8.
Scolopendra respublicana Giebel, Zeitschr. ges. naturw., 1879, **52**, p. 326.

Localities.— State of Matto Grosso: Madeira-Mamore, R. R. camp 41, on the Rio Madeira! (W. M. Mann); Brazil (without more definite locality, reported by Porat as *nitida* by Pocock and by Kraepelin).

The species is widely distributed elsewhere in South America and in the Antilles.

Scolopendra viridicornis Newport.

Ann. mag. nat. hist., 1844, **13**, p. 97; Kraepelin, Revis. Scolop., 1903, p. 236; Brölemann, Cat. Myr. Brésil, 1909, p. 9.
Scolopendra punctidens Newport, Loc. cit.
Scolopendra cristata Newport, Loc. cit.; Meinert, Proc. Amer. philos. soc., 1886, **23**, p. 192.
Scolopendra variegata Newport, Loc. cit., p. 98.
Scolopendra hopei Gray, List Myr. Brit. mus., 1844, p. 45.
Scolopendra herculeana C. L. Koch, Myr., 1863, **1**, p. 22, fig. 20.
Scolopendra morsitans C. L. Koch, Ibid., p. 37, fig. **33**.
?*Scolopendra costata* C. L. Koch, Myr., 1863, **2**, p. 25, fig. 147.

Localities.— State of Rio Grande do Norte: Natal! (W. M. Mann); State of Pará: Pará; State of Bahia: Bahia, Rio São Francisco (sec. Koch); State of Pernambuco; State of Amazonas: Manáos, Amazon River! (J. C. Fletcher, M. C. Z.); State of Ceará: Ceará or Fortaleza! (W. M. Mann); Brazil without definite locality (Chas. Linden, M. C. Z.; and sec. Porat and Kohlrausch, as *S. cristata*; Gray, as *S. hopei*; and Newport and Kohlrausch, as *viridicornis*).

Judging by the number of specimens secured by Mr. Mann, the species is very common at Natal.

Scolopendra explorans, sp. nov.

Dorsum dark olive, the plates being somewhat darker at the caudal borders and in a transverse row of areas or spots across the anterior half. Head darker excepting along the caudal border where it is much lighter, somewhat testaceous. Antennae olivaceous. Legs testaceous, excepting the posterior pairs, especially the ultimate, which are of a somewhat cherry-red color, particularly distad. Venter light brown. Prosternum dark brown; the prehensors somewhat rufous proximad of the black claws.

Cephalic plate with two very fine submedian sulci diverging cephalad across entire length of plate. Very finely and subdensely uniformly punctate.

Antennae of moderate length. Composed of seventeen articles of which the first four are subglabrous and subdensely finely punctate; the other articles very densely clothed with fine brownish pubescence. Articles from the sixth distad not more than one and a half times longer than wide.

Prosternum and prehensors subdensely punctate with fine punctae. With no median sulcus but with a distinct though fine transverse sulcus, caudad of which there is a mesal, shallow depression. Each dental plate with a large isolated tooth at ectal end and apparently three thoroughly fused teeth mesad of this, there being only slight indications of any divisions in the fused piece.

First dorsal plate with a distinct cervical sulcus. Very finely punctate, the punctae being rather more scattered than on the head. No sulci detected on the second plate. The third to twentieth plates with paired longitudinal sulci extending full length of plate, fine. Finely punctate like the first plate, but the punctae becoming fainter and fainter caudad. First indications of lateral margination shown on the eleventh to fourteenth plate, the margination becoming more and more strongly marked caudad. Last dorsal plate without a median keel. Not punctate. Convexly arched on anterior portion, the posterior being more flattened. Caudal margin rather strongly bowed out caudad, the border being depressed in front of the median portion of the margin.

Ventral plates either wholly without sulci or with very short traces of these at anterior border. Punctae fine, becoming faint caudad. Last ventral plate narrowed caudad. Caudal margin subtruncate, being but weakly rounded; mesally slightly notched or incurved. Without median longitudinal sulcus.

Caudal process of coxopleurae of anal legs very short; ending in three or four spines or points, the coxopleurae being otherwise unarmed. Pores very fine and numerous.

First pair of legs with two tarsal spines. Second to nineteenth pairs with a single tarsal spine. Prefemur of nineteenth legs dorsally at distal end with a single spine; that of the twentieth with two spines; the femur of the latter pair dorsally at distal end also with a single spine. Prefemur of twentieth legs unarmed ventrally.

Prefemur of anal legs with the corner process at distal end above ending in two stout points or teeth; ventrally with five spines arranged in two transverse or somewhat oblique rows, a distal row, composed of three spines, being at about the middle of length of joint, and a more proximal one of two spines (or in three longitudinal rows, 2, 2, 1); mesally with three or four spines in two longitudinal rows; and along dorsomesal edge with two spines in addition to a single one more strictly dorsal. Femur with two spines on proximal half along dorsomesal edge with a third one ventrad of these on the mesal surface; and, in addition, also a spine at distal end on mesodorsal corner. Claw with two basal spines which are very small.

Length cir. 83 mm.

Locality.— State of Matto Grosso: Madeira-Mamore R. R. camp 39, on the Rio Madeira! (W. M. Mann).

This interesting species is evidently close to *S. armata* described by Kraepelin from Venezuela (Maracaibo), with which it is characteristically separated from all others now known. Among the more important differences between these two species, so far as the description of *armata* permits of comparison, may be mentioned the complete absence of any spines on the twentieth legs; the dense pubescence of antennae on all articles distad of the fourth; the distinct punctation of the first dorsal plate; the margination of the dorsal plates from the eleventh to fourteenth caudad instead of from the eighteenth or nineteenth; the absence of paired sulci passing entirely across any of the plates; the presence of two spines at base of claw of anal legs instead of but one, etc.

Scolopendra polymorpha Wood.

Proc. Acad. nat. sci. Phil., 1862, p. 11; Kraepelin, Revis. Scolop., 1893, p. 241.

Scolopendra copeiana Wood, Journ. Acad. nat. sci. Phil., 1862, ser. 2, **5**, p. 27; Pocock, Biol. Centr. Amer. Chilopoda, 1895, p. 19.

Scolopendra mysteca Humbert et Saussure, Rev. mag. zool., 1869, ser. 2, **21**, p. 157.

Scolopendra pachypus Kohlrausch, Archiv. naturg., 1881, **47**, 1, p. 113.
Scolopendra leptodera Kohlrausch Ibid.; Brölemann, Cat. Myr. Brésil, 1909, p. 19.

Locality.— Brazil (type of *leptodera* Kohlrausch, which has been restudied by Kraepelin and identified with *polymorpha*).

This is a very common species in the southern United States and in Mexico. It has also been recorded from Venezuela.

Scolopendra alternans Leach.

Trans. Linn. soc. London, 1812, **11**, p. 383; Meinert, Proc. Amer. philos. soc. 1886, **23**, p. 193; Kraepelin, Revis. Scolop., 1903, p. 244; Brölemann, Cat. Myr. Brésil, 1909, p. 15.
Scolopendra morsitans Palisot de Beauvois (non Linné), Ins. Afr. Amer., 1805–1821, p. 152.
Scolopendra sagraea Gervais, Ann. sci. nat., 1837, ser. 2, **7**, p. 50; Brandt, Bull. sci. Acad. imper. sci. St. Peterburg, 1840, **7**, p. 57.
Scolopendra complanata Newport, Ann. mag. nat. hist., 1844, **13**, p. 98.
Scolopendra grayii Newport, Ibid.
Scolopendra multispinata Newport, Ibid.
Scolopendra incerta, Newport, Trans. Linn. soc. London, 1844, **19**, p. 404.
Scolopendra crudelis C. L. Koch, Syst. Myr., 1847, p. 387; Myr., 1864, **2**, p. 36, fig. 158, 159; Meinert, Proc. Amer. philos. soc., 1886, **23**, p. 194.
Scolopendra cubensis Saussure, Mém. Soc., phys. hist. nat. Genève, 1860, **15**, p. 387.
Scolopendra testacea Wood, Journ. Acad. nat. sci. Phil., 1862, ser. 2, **5**, p. 26.
Scolopendra torquata Wood, Ibid.
Scolopendra longipes Wood, Ibid.
Scolopendra alternans Meinert, Proc. Amer. philos. soc., 1886, **23**, p. 193; Kraepelin, Revis. Scolop., 1903, p. 244; Brölemann, Cat. Myr. Brésil, 1909, p. 15.

Locality.— Brazil! (M. C. Z.).

This is a very common species in the West Indies, etc.

Scolopendra morsitans Linné.

Syst. nat. ed. 10, 1758, **1**, p. 638; Kraepelin, Revis. Scolop. 1903, p. 250; Brölemann, Cat. Myr. Brésil, 1909, p. 19.
(For synonymy and bibliography cf. Kraepelin, Loc. cit.).

Localities.— State of Amazonas: Manáos; State of Parahyba: Parahyba! (Nathaniel Thayer expedition, M. C. Z.); State of

Pará: Pará! (Nathaniel Thayer expedition, M. C. Z.); State of Bahia: Santarem! (M. C. Z.); State of Rio de Janeiro: Rio de Janeiro! (M. C. Z.); Brazil, without definite locality; (recorded by Gervais as *brandtiana* and *platypoides;* by Saussure as *brandtiana;* by Porat as *longicornis;* also specimens in M. C. Z., with no more definite label).

This is a cosmopolitan species.

Scolopendra subspinipes Leach.

Trans. Linn. soc. London, 1814, **11**, p. 383; Kraepelin, Revis. Scolop., 1903, p. 256; Brölemann, Cat. Myr. Brésil., 1909, p. 25.
(For synonymy and bibliography cf. Kraepelin, Loc. cit.).

Localities.— State of Bahia: Bahia! (Nathaniel Thayer expedition, M. C. Z.); State of Rio de Janeiro: Rio de Janeiro! (M. C. Z.); Brazil without definite locality (M. C. Z.); also recorded by Gervais as *audax;* by Newport as *gervaisi*, and *placeae;* by Koch, Kohlrausch, and Brölemann as *armata*).

GEOPHILOIDEA.

Schendylidae.

Of this family, the largest of the Geophiloidea in the known fauna, three genera are found in Brazil, Schendylurus, Adenoschendyla, and Thalthybius (Ballophilini).

Schendylurus Silvestri.

Mitth. Naturh. mus. Hamburg, 1907, **24**, p. 245; Brölemann et Ribaut, Bull. soc. ent. France, 1911, p. 192; Arch. Mus. hist. nat., 1912, ser. 5, **4**, p. 113.
Schendyla Brölemann (ad. part. max.), Cat. Myr. Brésil, 1909, p. 6.

The Brazilian species known may be separated by means of the key. *Schendylurus brasilianus* Silvestri, probably belonging to this genus, is not taken up, the published description being too meager to furnish sufficient information.

Key to Species.

a. Pairs of legs less than fifty.
  b. Ventral pores occurring on the first sternite; pores on each sternite divided into three areas; cephalic plate scarcely longer than wide.
    Pairs of legs forty-one.
      S. luderwaldi Brölemann and Ribaut.
  bb. No ventral pores on the first sternite; ventral pores, at least on the anterior sternites, in an undivided area; cephalic plate considerably longer than wide.
    c. Antennae three times or more the length of the cephalic plate; last article of anal legs longer and conspicuously more slender than the penult; pairs of legs (♀) 47.
      S. perditus, sp. nov.
    cc. Antennae but two times, or less, the length of the cephalic plate; last article of anal legs of nearly same length and thickness as the penult; pairs of legs (♀) thirty-seven.
      S. bakeri, sp. nov.
aa. Pairs of legs near or above sixty.
  b. Prebasal plate not exposed.....*S. gounellei* Brölemann.
  bb. Prebasal plate exposed.....*S. paulista* Brölemann.

Schendylurus luderwaldi Brölemann and Ribaut.

Bull. Soc. ent. France, 1911, p. 220; Arch. Mus. hist. nat., 1912, ser. 5, **4**, p. 117, fig. 48–52.

Locality.— State of Rio de Janeiro: Campo Itatiaya (Mus. Paul. coll.).

Schendylurus bakeri, sp. nov.

Very pale; more densely pigmented anteriorly, where the color is pale lemon-yellow. Head and the prosternum with prehensors chestnut or with slight tendency to ferruginous. Antennae similar to head but lighter.

Body moderate; conspicuously narrowed from a little back of the middle caudad, but only moderately attenuated cephalad. Hairs of body and legs sparse, those of the legs chiefly toward the distal

ends of articles as usual, these also being longer than the more proximal ones.

Cephalic plate widest in front of middle where it bulges convexly on each side; sides of head caudad of this straight and a little converging to level of posterior end of first joint of prehensors (femur), then abruptly more strongly converging to the caudal corners which are not rounded; caudal margin straight; anteriorly the head is convexly widely rounded. Longer than wide, the ratio being nearly 43:38.

Antennae short being only 1.9— times longer than the cephalic plate; scarcely attenuated. Hairs very short, denser on the more distal articles, with hairs longer and more sparse on the proximal ones. Articles short, decreasing distad, with the sides more nearly straight than in *perditus*; ultimate article not much differing in length from the two preceding taken together.

Prebasal plate exposed.

Basal plate conspicuously narrowed cephalad; trapeziform. Two and a third times wider than long. Slightly more than one third as long as the cephalic plate (ratio 1:2.8–2.9).

Claws of prehensorial feet when closed attaining the front margin of the cephalic plate. Joints all unarmed within as usual. Sides of prosternum for most of length nearly straight and but slightly converging caudad, more abruptly rounding into caudal corners. Much wider than long, the ratio being 47:34. Longer than the first joint of prehensors in ratio 3:2.

Dorsal plates mostly showing a fine median sulcus in addition to the lateral ones. Anterior prescuta short, those of the middle and posterior regions becoming rather long, the last few then again short.

Spiracles all circular; the first considerably larger than the second, the others decreasing caudad and those of the posterior region very small or minute.

First fourteen or fifteen sternites angularly produced at middle of caudal margin, the process small; process fitting into an excavation in the succeeding segment as usual. The anterior margin of the second sternite conspicuously extended from sides to middle, that of the third segment similarly but less strongly produced, that of the fourth merely convexly bowed out, and those of the succeeding ones straight, or nearly so, or even a little incurved. Ventral pores present on all sternites excepting the first and the last; pore area subcircular, with the pores numerous. Sternites mostly showing a longitudinal median furrow which is deepest just in front of the middle, and a weaker transverse furrow which curves across in front of the pore area.

Last ventral plate very wide; trapeziform; the sides moderately converging caudad; caudal margin mesally incurved as in *manni* (Plate 4, fig. 7).

Coxopleural pores appearing as two large pits on each side, these being wholly covered by the last ventral plate excepting for a small ectal portion of each (Plate 4, fig. 7).

First pair of legs a little more slender than the second, but not at all or but slightly shorter. Posterior pairs of legs longer and proportionately more slender than the anterior ones.

Anal legs (♀) much longer than the penult. Scarcely thickened. The ultimate article about equal in length to the preceding one and not more slender; but the last two articles together more slender than the tibia. Hairs more numerous than on other legs, especially on the proximal joints (Plate 4, fig. 7). Pairs of legs (♀) forty-seven.

Length 24 mm.

Locality.— State of Amazonas: Manáos! (Mann and Baker).

One female.

Manifestly close in the main structural features to *S. perditus.* It is a materially larger form; has forty-seven pairs of legs as against thirty-seven in the latter species, has the antennae relatively much shorter; and the last article of the anal legs is proportionately much shorter and thicker as shown in the figures.

Schendylurus perditus, sp. nov.

Body whitish, tinged with dilute lemon-yellow which is more evident anteriorly. Head and prosternum with prehensors ferruginous. Antennae brownish yellow of faint ferruginous tinge.

Moderate or slender; only slightly attenuated cephalad, more abruptly so caudad. Hair very sparse and mostly short over body, and those of legs also sparse.

Cephalic plate evidently longer than wide, the ratio being about 5: 4.4. Widest toward anterior end where the sides are convex; from this region caudad the sides are more nearly straight and converge at first moderately and then more abruptly toward the posterior corners; caudal margin appearing considerably incurved. Frontal suture not present. (Plate 4, fig. 1).

Labral margin armed in the type with eighteen rather large, subacute, and strongly chitinous denticles, those at the sides being smaller, with apices turned mesad, and more acute than the more median ones.

First maxillae of usual structure; outer branch robust, without lappets.

Claw of palpus of second maxillae long, distally slender and acute and strongly curved; pectinate along both edges, the divisions long and slender.

Antennae moderately long, being three and a fifth times as long as the cephalic plate, only a little attenuated distad. Articles of proximal portion moderately long, each somewhat clavately widening from proximal and distad; the five articles preceding the ultimate short and relatively wider. Hairs of the last six or seven articles very short and rather numerous, on the more proximal articles becoming much more sparse and manifestly longer.

Prebasal plate exposed.

Basal plate trapeziform, the sides convex. About one third as long as the cephalic plate and 2.4–2.5 times wider than long.

Claws of the prehensors when closed not fully attaining the front margin of the head. Claws smooth. All articles unarmed within as usual.

Prosternum with sides for most of length nearly straight, a little converging caudad, more abruptly rounding mesad at posterior corners. Anterior margin well chitinized; but not at all denticulate; mesal incision between lateral portions shallow, semicircular; sloping from each side to the middle, there forming an obtuse reentrant angle. Prosternum much wider than long, the ratio being about 25: 18; longer than the outer length of femur in about ratio 3: 2. Hairs of prehensors sparse and in part moderately long; those of prosternum very sparse and short. (Plate 4, fig. 2).

Prescuta of the anterior and of the posterior fourths of length short, the others being moderately long. Sulci sharply impressed.

Spiracles all circular; the first conspicuously larger than the second, the others decreasing in size caudad and becoming very small or minute in the posterior region.

The more anterior sternites with a rather narrow angular median caudal process which fits into a corresponding excavation in the succeeding sternite. Each with a suberuciform impression which is considerably expanded in the region where the furrows cross. Pores beginning on the second segment where there are from forty to forty-five in the type; pores present on all succeeding sternites excepting the last, those of the penult segment being fewer in number; pores arranged in an undivided circular area.

Last ventral plate wide, trapeziform, the sides being nearly straight

and converging caudad; caudal margin angularly excised at middle, convex laterally toward and about each caudal corner. (Plate **4**, fig. 3).

Each coxopleura with glands in the form of two large pits which are entirely simple and homogeneous; the anterior pore wholly and the posterior one mostly covered by the last ventral plate. (Plate **4**, fig. 3).

First pair of legs a little more slender than the second but only slightly shorter. Posterior legs longer and proportionately more slender than the anterior ones. Anal legs much longer than the penult. Slender in the female. The distal joint somewhat longer that the preceding one and much more slender. Pairs of legs (♀) thirty-seven.

Locality.— State of Parahyba: Independencia! hills north of the town. (Mann and Heath).

Schendylurus gounellei (Brölemann).

Schendyla gounellei Brölemann, Ann. Soc. ent. France, 1902, **71**, p. 685; Cat. Myr. Brésil., 1909, p. 6.

Schendylurus gounellei Brölemann et Ribaut, Arch. Mus. hist. nat., 1912, ser. 5, **4**, p. 119, fig. 6, 62–67.

Locality.— State of São Paulo: Façenda Nova Nicaragua.

Schendylurus paulista (Brölemann).

Schendyla paulista Brölemann, Rev. Museu Paulista, 1903, **6**, p. 83, pl. 1, fig. 6–7; Cat. Myr. Bresil., 1909, p. 6.

Locality.— State of São Paulo: Poco Grande.

In many ways close to the preceding species and possibly but a variety of it.

(?) Schenydlurus brasilianus (Silvestri).

Nannophilus brasilianus Silvestri, Ann. soc. ent. Belg., 1907, **41**, p. 346.

Schendyla brasiliana Brölemann, Cat. Myr. Brésil., 1909, p. 6.

Locality.— Brazil (precise locality not indicated).

The generic position of this species cannot be determined from the

original description. It appears not to be a true Nannophilus under which genus it was described, and is most probably a member of Schendylurus.

Adenoschendyla Brölemann and Ribaut.

Bull. Soc. ent. France, 1911, p. 192; Nouv. Arch. Mus. hist. nat., 1912, ser. 5, **4**, p. 194.

Three species and one variety of this genus, which is peculiar to tropical and subtropical America, are known from Brazil. Of these, one is here first described.

The genus is close to Pectiniunguis. Pectiniunguis and Adenoschendyla lack claws on the anal legs in contrast with species of the southwestern United States (*montereus, heathi,* etc.) The latter species differ as well in other respects and may be placed under a distinct genus to be known as Nyctunguis (*P. montereus* Chamb., type).

Key to Species.

a. Prebasal plate not exposed; none of the pore areas of the sternites are divided.....*A. plusiodonta* (Attems).

aa. Prebasal plate exposed; some of the sternites of the median or posterior region of body longitudinally divided or geminate.

b. Head much longer than wide (ratio 4:3 to 4:3.5), pairs of legs fifty-three to fifty-nine.

c. Pores present on first sternite; head wider caudad than cephalad, longer than wide in ratio 4:3; pairs of legs 59 (♀); length 40 mm.....*A. parahybae,* sp. nov.

cc. No pores present on first sternite; head of same width anteriorly and posteriorly, longer than wide in ratio 4:3.5; pairs of legs 53 (♂)–55 (♀); length 25 mm.
A. geayi Brölemann and Ribaut.

bb. Head but slightly longer than wide (ratio not more than 10:9), widest cephalad; pairs of legs forty-seven to fifty-three.

c. Claw of palpus of second maxillae of usual form.
A. imperfossa (Brölemann).

cc. Claw of palpus of second maxillae globular at base.
A. imperfossa bolbonyx Brölemann and Ribaut.

ADENOSCHENDYLA PARAHYBAE, sp. nov.

Mostly pale yellowish white, becoming more densely pigmented anteriorly, lemon-yellow. Head dilute ferruginous or orange, darker in a band immediately caudad of frontal region. Prosternum a little paler than the head, with the prehensors much lighter, yellow. Antennae yellow.

Rather slender with the body considerably attenuated cephalad and also very strongly at caudal end. Hairs sparse, of moderate length, more numerous caudad.

Cephalic plate much longer than wide (4:3). Widest caudad, conspicuously narrowed or constricted in frontal region at anterior end; anterior border subtriangular; caudal margin slightly concave; sides nearly straight from a little in front of caudal corners cephalad to frontal region. (Plate 5, fig. 1).

Antennae strictly filiform as usual. Long, being a little more than three times the length of the cephalic plate. Articles mostly long, excepting those immediately preceding the ultimate. Ultimate article longer than the two preceding taken together. Hairs of articles of distal region very short, dense; those of proximal articles conspicuously longer and more sparse.

Prebasal plate a little exposed, the cephalic plate not overlapping the basal.

Basal plate with sides straight, strongly converging cephalad; three times wider than long.

Claws of the prehensors when closed about even with the front margin of the cephalic plate; claws large and well overlapping; robust; articles all unarmed within as usual.

Prosternum wider than long in about ratio 7:5; one and a half times longer than the outer height of the femur of prehensors; sides converging from the anterior corners to the caudal and straight excepting towards ends; anterior margin sloping a little caudad of directly mesad from the ectal ends to the mesal incision, which is shallow, laterally strongly chitinized but with no signs of teeth.

Dorsal plates bisulcate; the sulci on the anterior plates distinct caudad as far as a fine transverse furrow a little in front of the caudal margin, this transverse furrow being in the form of a pair of concave impressions meeting at a cephalically directed angle; a fine median longitudinal sulcus also present as may also be one or two less distinct ones on each lateral part. Anterior prescuta short, the others increasing in length to the caudal region where they are moderately long, the last ones being again short.

Spiracles all circular; the first one much larger than the second and the latter likewise considerably larger than the third; the others gradually decreasing caudad, in the posterior region becoming minute.

The first sixteen sternites with the caudal border produced at the middle, the distinct process in each case fitting into a corresponding excavation in the succeeding segment. Ventral pores present on all sternites excepting the ultimate; on the sternite as far back as the twenty-fifth or twenty-sixth, the pores are in a single distinct subcircular area; caudad of this the areas are more irregular, with a distinct tendency for each to become longitudinally divided into two areas or geminate.

Last ventral plate very wide; sides nearly straight, strongly converging caudad; caudal corners rounded; caudal margin a little crenately incised a little each side of the middle. Rather densely clothed with fine short hairs, especially on the caudal portion.

Coxopleurae subdensely clothed over the ventral area with fine short hairs.

First pair of legs shorter and more slender than the second, the next few pairs gradually attaining the full size; anterior pairs of legs conspicuously more robust than the posterior ones.

Anal legs in the female much longer than the penult; very slender. Ultimate joint longer than the penult, very slender and ending in a minute membranous point but with no trace of a real claw. Hairs long and sparse. (Plate **5**, fig. 3). Pairs of legs fifty-nine.

Length 40 mm.

Locality.— State of Parahyba: Independencia! (Mann and Heath).

The present species differs from *plusiodonta* (Attems) in the much greater length and different shape of the cephalic plate, this in *plusiodonta* being only about as long as wide; in having the prebasal plate exposed; in the greater number of pairs of legs; in the character of the ventral pore areas, etc. The two species are similar in regard to the processes and pits of the anterior plates.

Adenoschendyla plusiodonta (Attems).

Pectiniunguis plusiodontus Attems, Zool. jahrb. Syst., 1903, **18**, p. 193, pl. 13, fig. 18; Chamberlin, Proc. Acad. nat. sci. Phil., 1904, p. 654.

Adenoschendyla plusiodonta Brölemann et Ribaut, Nouv. Arch. Mus. hist. nat., 1912, ser. 5, **4**, p. 106.

Locality.— State of Santa Catherina: Blumenau.

Adenoschendyla imperfossa (Brölemann).

Schendyla imperfossa Brölemann, Rev. Mus. Paulista, 1901, **5**, p. 44, pl. 1, fig. 8–13; Cat. Myr. Brésil, 1909, p. 6.
Adenoschendyla imperfossa Brölemann et Ribaut, Nouv. Arch. Mus. hist. nat. 1912, ser. 5, **4**, p. 107.

Locality.— Brazil. (Museu Paulista).

Adenoschendyla imperfossa bolbonyx Brölemann and Ribaut.

Brölemann et Ribaut, Nouv. Arch. Mus. hist. nat., 1912, ser. 5, **4**, p. 107, fig. 18–23.

Locality.— State of São Paulo (type Museu Paulista).

Adenoschendyla geayi Brölemann and Ribaut.

Bull. Soc. ent. France, 1911, p. 219; Nouv. arch. Mus. hist. nat., 1912, ser. 5, **4**, p. 108, pl. 2, fig. 24–30, pl. 3, fig. 31–32.

Locality.— State of Amazonas (Brazilian Guiana, Lower Carsevenne or Calçoene, Geay, collector).

Thalthybius Attems.

Zool. jahrb. Syst., 1900, **13**, p. 139; 1903, **18**, p. 183.

Prionothalthybius Brölemann.

Arch. zool. exp. et gen., 1909, ser. 5, **3**, p. 334.

Thalthybius (Prionothalthybius) perrieri Brölemann.

Bull. Mus. hist. nat., 1909, p. 1, fig. 8–10.

Locality.— State of Amazonas (Brazilian Guiana, Upper Carsevenne or Calçoene; Geay, collector).

Of Uncertain Position.

(?) Geophilus sublaevis Meinert.

Natur. tiddskr., 1870, ser. 3, **7**, p. 72.

Locality.— State of Minas Geraes: Lagoa Santa.

This is certainly not a true *Geophilus*, being in all probability a member of the present family. It seems likely to prove to belong to Schendylurus. The anal legs are unarmed; the last ventral plate very wide with pores on coxopleurae said to be absent by Meinert but no doubt to be found after proper treatment with potash as has been shown to be true with various species of Schendylurus, etc., which at first were considered to lack the pores; the prosternum and joints of prehensors, unarmed, the claws of the latter not surpassing the front margin of the head; pairs of legs 67.

Oryidae.

Orphnaeus Meinert.

Myr. Mus. Hauniensis, 1870, **1**, p. 17; Proc. Amer. philos. soc., 1886, **23**, p. 230; Zool. jahrb. Syst., 1903, **18**, p. 200; Verhoeff. Bronn's Thierreich, 1908, **5**, p. 294.

Chomatobius Humbert et Saussure, Rev. mag. zool., 1870, p. 205; Miss. scient. Mex., 1872, p. 145.

Orphnaeus branneri, sp. nov.

Dorsum yellowish brown, darker cephalad where the tergites are margined with a more deeply red stripe. The anterior dorsal plates, excepting the first one, with a conspicuous black spot on the anterior portion, this consisting typically of a narrow transverse stripe along the anterior margin connected at the middle by means of a broad neck with two short curved marks diverging from each other and bending out laterad near the middle of the plate; this mark in going from segment to segment caudad becoming less and less developed and finally disappearing entirely. No distinct geminate dark stripe such

as is so characteristic of *brevilabiatus*. Basal and cephalic plates deep ferruginous; prosternum and prehensors ventrally similar but paler, the claws black. Antennae like cephalic plate but pale at their very tips. Venter pale testaceous, darker cephalad. Legs similar to venter.

Body large and robust; strongly attenuated both cephalad and caudad. Hairs of body very fine and short as are also the few hairs of the legs.

Cephalic plate conspicuously wider than long, the ratio being about 48: 39. Widest caudad, where the sides are convex; moderately converging anteriorly in front of the middle to the anterior corners; lateral portions of anterior margin converging from the anterolateral corners to an obtuse angle at the middle; caudal margin widely, weakly convex. Plate with subdense, uniform, fine punctae. Hairs very fine and short, numerous.

First maxillae with inner division sharply set off; short and broad, apically rounded, not membranous. Outer division with the second and third articles not separated by a suture; short and thick; slightly membranous at tip on mesal side; membranous lappets of moderate length, the distal one wide and rather dorsal in position. Coxae of the second maxillae broadly joined at middle; with the usual oval opening toward the caudal end of each side. Claw of palpus rather small, bearing along each edge a fringe of about nine or ten spines.

Antennae very short, being but 1.68 times the length of the cephalic plate. Flattened; very wide at base, then strongly narrowed, especially distad of about the proximal fourth. Proximal articles very short, much wider than long, the more distal ones relatively longer; the ultimate article not much differing in length from that of the two preceding ones taken together. Hairs very fine and short, dense distad, becoming less so proximad.

Prebasal plate not exposed.

Basal plate embracing the cephalic. Very wide, with sides convex and not strongly converging cephalad; nearly one half as long as the cephalic plate (ratio about 2.1: 1), and very nearly three times as wide as long; finely and subdensely punctate like the head. Hairs similar to those of the head but considerably fewer in number.

Claws of the prehensors when closed very nearly but not wholly attaining the front margin of the cephalic plate; all joints unarmed; claws stout.

Prosternum much wider than long, the ratio of width to length being 2.25–2.3: 1; longer than the outer height of femur in ratio 25: 14; subdensely punctate as are also the proximal articles of the prehensors. (Plate **5**, fig. 5).

Dorsal plates with a pair of longitudinal deeply impressed sulci on the middle portion and an additional longitudinal sulcus farther laterad on each side less sharply impressed; indications on some segments also of a shallow median longitudinal median furrow. First dorsal plate considerably wider than the second and at its ends bent ventrad toward the base of each leg and crenately incised on the caudal side near each corner (Plate 5, fig. 4).

Spiracles large; all elliptic, the anterior ones being oblique but more nearly horizontal than vertical, becoming strictly longitudinal caudad; first spiracle not larger than the second; those of the caudal region smaller as usual. Suprascutella large and distinct in the posterior region but absent in the anterior.

Ventral pores in two broad transverse bands connected at the ends and thus forming a quadrangle. Enclosed area mostly with a distinct transverse furrow or row of impressed spots or the whole area roughened with irregular impressions, in most more deeply impressed longitudinally at middle.

Last ventral plate pentagonal, the sides strongly converging caudad and the caudal margin straight. Marked with a longitudinal median furrow which is not especially deep.

Coxopleurae rather large, coxiform; longer than thick in the direction of thinnest diameter; the trochanter only about one third as long.

Anal legs in male considerably shorter than the penult; composed of six articles [1] which decrease in diameter regularly from base distad. Pairs of legs 77.

Length 88 mm.; length of antennae, 2.2 mm.; greatest width of body, 3.3 mm.; width of first dorsal plate 1.9 mm.

Locality.— State of Rio Grande do Norte: Natal! (Mann).

While this species is close in many features to *brevilabiatus*, it is very easily separated from this wide-spread form. It is most readily distinguished by the antennae which are much shorter, extending only to the caudal end of the basal plate or thereabouts, whereas in *brevilabiatus* they reach upon or toward the caudal end of the second pediferous segment; also the antennae are conspicuously wider at the base and more strongly attenuated (Plate 5, fig. 4). The dorsal plate of the first segment is clearly different, being bent farther ventrad of ends and being more considerably notched on caudal side toward each caudolateral corner. It lacks the conspicuous geminate dorsal black stripe so characteristic of *brevilabiatus*.

[1] The right leg of the type specimen appears to have been regenerated. It is shorter than the other and consists of but five articles.

Orphnaeus brevilabiatus (Newport).

Geophilus brevilabiatus Newport, Trans. Linn. soc. London, 1844, **19**, p. 436.
Geophilus lineatus Newport, Ibid.
Geophilus guillemini Gervais, Insect. Aptères, 1847, **4**, p. 311.
Chomatobius brasilianus Humbert et Saussure, Rev. mag. zool., 1870, p. 205; Miss. scient. Mex., 1872, p. 146, pl. 6, fig. 24.
Orphnaeus brasiliensis Meinert, Myr. Mus. Hauniensis, 1870, **1**, p. 20; Proc. Amer. philos. soc., 1886, **23**, p. 232; Bollman, Proc. U. S. nat. mus., 1888, **11**, p. 337; Brölemann, Mem. Soc. Zool. France, 1900, **13**, p. 92; Ann. Soc. ent. France, 1902, **71**, p. 652; Zool. anz., 1903, **26**, p. 178; Rev. Mus. Paulista, 1903, **6**, p. 71; Attems, Zool. jahrb. Syst., 1903, **18**, p. 201; Cat. Myr. Brésil, 1909, p. 5.
Orphnaeus brevilabiatus Pocock, Journ. Linn. soc. London, 1893, **24**, p. 472; Biol. Centr. Amer. Chilopoda, 1895, p. 40.
Orphnaeus brasilianus nigropictus Attems, Loc. cit., p. 203.

Localities.— State of Rio Grande do Norte: Ceará-Mirim! (Mann and Heath); State of Parahyba: Independencia! (Mann and Heath); State of Amazonas: Manáos; State of Pará: Pará; State of Pernambuco: Pernambuco; State of Rio de Janeiro: Rio de Janeiro!.

Notiphilides Latzel.

Myr. Öst-Ung. monarch., 1880, **1**, p. 20; Zool. anz., 1880, **3**, p. 546; Meinert, Proc. Amer. phil. soc., 1886, 23, p. 233; Attems, Zool. jahrb. Syst., 1903, **18**, p. 233; Verhoeff, Bronn's Thierreich, 1908, **5**, p. 292.

Notiphilides grandis Brölemann.

Rev. Mus. Paulista, 1903, **6**, p. 71, pl. 1, fig. 8–11.

Locality.— State of Amazonas: Manáos.

It was possibly a specimen of this species to which Cook gave the name *Heniorya longissima;* but as no description of the species is given both the generic and specific names, as Brölemann justly suggests, stand purely as *nomina nuda.*

Aphilodontidae.

Mecistauchenus Brölemann.

Brasilophilus Brölemann, Bull. Soc. ent. France, 1907, p. 283. Verhoeff, Bronn's Thierreich, 1908, **5**, p. 286.

Mecistauchenus micronyx Brölemann.

Aphilodon micronyx Brölemann, Rev. Mus. Paulista, 1901, **5**, p. 46; Cat. Myr. Brésil., 1908, p. 3.
Mecistauchenus micronyx Brölemann, Bull. Soc. ent. France, 1907, p. 283.

Locality.— Brazil (precise locality not reported).

Aphilodon Silvestri.

Comm. Mus. nac. Buenos Aires, 1898, **1**, p. 39; Attem. Zool. jahrb. Syst., 1903, **18**, p. 215, 283; Verhoeff, Bronn's Thierreich, **5**, p. 279, 282; Silvestri, Boll. Lab. zool. R. sc. Agricol. Portici, 1909, **4**, p. 53.

Aphilodon angustatus Silvestri.

Rend. R. accad. Lincei, ser. 5, **18**, p. 269; Boll. Lab. zool. R. sc. Agricol. Portici, 1909, **4**, p. 56.

Locality.— State of Matto Grosso: Urucum, Corumbá. Also reported from Paraguay and Argentina.

Mecophilus Silvestri.

Rend. R. accad. Lincei, 1909, ser. 5, 1, **18**, p. 268.

Mecophilus neotropicus Silvestri.

Rend. R. accad. Lincei, 1909, ser. 5, 1, **18**, p. 269.

Locality.— State of Paraná: Iguassú.

Mecistocephalidae.

Mecistocephalus Newport.

Proc. Zool. soc. London, 1842, p. 178; Trans. Linn. soc. London, 1844, **19**, p. 276; Meinert, Naturh. tiddskr., 1870, ser. 3, **7**, p. 92; Latzel, Myr. Ost-Ung. monarch., 1880, **1**, p. 160; Meinert, Proc. Amer. philos. soc., 1886, **23**, p. 212; Haase, Abhandl. Mus. Dresden, 1887, **5**, p. 100.
Lamnonyx Attems, Zool. jahrb. Syst., 1903, **18**, p. 210; Verhoeff, Bronn's Theirreich, 1908, **5**, p. 273.

Mecistocephalus punctifrons Newport.

Proc. Zool. soc. London, 1842, p. 179; Trans. Linn. soc. London, 1844, **19**, p. 429; Meinert, Naturh. tiddskr., 1870, ser. 3, **7**, p. 97; Chamberlin, Ent. news, 1913, p. 122.

Mecistocephalus guildingi Newport, Loc. cit., p. 429; Meinert, Loc. cit., p. 96; Latzel, Mitt. Mus. Hamburg, 1895, **12**, p. 101; Pocock, Trans. Linn. soc. London, 1893, **24**, p. 470; Attems, Zool. jahrb. Syst., 1903, **18**, p. 209.

Mecistocephalus sulcicollis Tömösvary, Termes, füzetek, 1885, **5**, p. 64.

Lamnonyx punctifrons Attems, Loc. cit., p. 211.

Locality.— State of Amazonas: Manáos! (Mann and Baker).

This appears to be the first record of the occurrence of a member of the Mecistocephalidae in Brazil. The species is common in the Bermudas and West Indies. It must logically be regarded as the type of Mecistocephalus proper, the other species originally included under this name by Newport having been removed to other genera. It would seem that Newport did not at the time he erected the genus, know or have in hand any species congeneric with *carniolensis* and that in consequence there appears no justifiable way of continuing the prevalent practice of applying the name Mecistocephalus to the genus including these species.

As no difference of distinctive value has been pointed out between *punctifrons* and *guildingii* and as different authors refer to American specimens at times under one and at other times under the other name, I have united the two as one species as was long ago suggested by Meinert. If the form occurring in the western hemisphere shall be found to differ definibly from that of the eastern hemisphere, it must bear the name *guildingii*.

Tygarrup, gen. nov.

Body widest near middle, attenuated moderately cephalad and more strongly caudad.

Head large. Cephalic plate longer than wide, narrowed caudad. Frontal suture present.

Antennae long, filiform.

Clypeus proper large, triangularly extending forward in middle to between antennae, at middle being three times greatest length of labrum; clothed with few hairs.

Labrum tripartite, the median piece narrow and caudally one-

toothed; the lateral pieces smooth, not longitudinally striate; not much bowed.

From each anteroectal corner of labrum a suture extends obliquely cephaloectad, separating the median from the lateral divisions of the ventral portion of the cephalic plate; lateral division narrowed caudad, the mesal edge strongly chitinized and extended cephalad into an angular process as in related genera.

Mandibles with pectinate lamellae only.

First maxillae with coxae completely separated, though closely appressed at median line. Inner branch clearly separated from coxa; subtriangular; distally prolonged into a conspicuous membranous lobe which is nearly as long as the proximal portion. Outer branch with second and third divisions completely coalesced; narrow; extended distally into a long membranous lobe like that of inner division; no lappets present. Second maxillae with coxae rather short; coalesced at median line but more narrowly than in Mecistocephalus, etc. Pore of salivary gland on ectal portion of coxosternum near middle of length, not at caudal angle, the passage extending ectad to lateral margin. Palpi terminating in short, nearly straight, claws.

Prehensors large, much exposed from above.

Claws extending beyond front margin of head. Some of joints mesally armed.

Basal plate narrow.

Prebasal plate not exposed. Pleurae exposed at sides of basal plate.

Dorsal plates bisulcate.

Ventral pores absent.

Last ventral plate subtriangular. Coxopleurae large, porose.

Anal legs with six joints distad of coxopleurae; clawless.

Anal pores present.

Type.— *T. intermedius*, sp. nov.

This genus is most closely related, apparently, to that embracing *carniolensis*, *limatus*, etc. (Mecistocephalus of most authors). It is different chiefly in the following points:— the materially greater shortness of the coxopleurae of the second maxillae and particularly the difference in position of the salivary pore, this being at about middle of length and toward lateral margin, not at extreme caudal angle as in Mecistocephalus, etc.; and the lateral divisions of the labrum being unarmed, that is smooth, and not longitudinally striate. Also the hairs of labrum are much more sparse. From Mecistocephalus proper (*punctifrons* Newport, etc.) it may readily be separated through the absence of the strongly chitinized process or tooth on the

ventral border of head at anteroectal end of lateral division and the much shorter coxosternum of the second maxillae and difference in position of pore; the smaller middle piece of the labrum; and the larger clypeus, which extends cephalad in triangular form to near level of antennae. It agrees with the latter genus in the unarmed character of the lateral pieces of the labrum and also in the large size of the membranous lobe of the inner division of the first maxillae.

Tygarrup intermedius, sp. nov.

Yellowish; in type with a pale median longitudinal line paralleled or limited on each side by a somewhat darker stripe which is deepest cephalad and caudad, but these not evident in younger specimens. Head and prosternum with prehensors pale ferruginous. Antennae and legs pale.

Head widest at level of labrum, conspicuously narrowed caudad with posterior corners well rounded; caudal margin straight; sides oblique and somewhat incurved from ends of frontal suture to ectal side of base of antennae; anterior margin substraight, narrowly semicircularly excised at middle. Longer than wide in ratio 100:73. Pleural piece of ventral side of head plate with mesal edge strongly chitinized and ending cephalad in a pointed process as usual but with no trace of a tooth at cephaloectal angle. Clypeal region with hairs very sparse. Hairs of dorsal surface small and sparse.

Labrum with the median piece very narrow, the sides of this being for most of length nearly parallel or but little converging caudad, its caudal end narrowing to a subacute tooth. Greatest length of labrum (*i. e.* at ends) about one third the median length of the clypeal area.

Inner branch of the first maxillae with basal portion subtriangular in outline; the membranous distal division as long as or nearly as long as the basal, widening distad with mesal side concave and the ectal convex. Outer branch narrow, subcylindric, narrowing but moderately to the beginning of the long membranous distal division which is as long as the proximal division and widens distad like that of the inner division which it overtops by a short distance.

Coxosternum of second maxillae rather short; median portion membranous; mesocaudal portion also membranous and not sharply defined. Pore close to outer edge, to which a passage from it leads, and a little caudad of middle of length, five or six bristles forming a row parallel with and a little removed from the anterior margin on each

side. Claw of palpus small and pale, nearly straight, with a denticle on mesal side toward base.

Antennae nearly 2.4 times longer than the head. Articles moderate in length, decreasing very gradually distad. Ultimate article (in mature specimen) shorter than the two preceding taken together in about the ratio 3:4, in young specimens longer than these two.

Claws of the prehensors when closed reaching to the end of the first antennal segment. Claw without a true tooth within, there being, however, a slight low, rounded, chitinous elevation; intermediate joints unarmed; prefemur (femuroid) at distal end on mesal side with a distally rounded tooth projecting cephalomesad.

Prosternum a little wider cephalad than caudad; 1.3 times longer than wide; 1.9 times as long as length of prefemur on ectal side. Prosternum bearing on anterior margin each side of mesal incision a basally broad, conical tooth. Mesal incision with sides almost parallel, rounded at bottom. Basal plate a little overlapped both by head and by first dorsal plate; twice as wide as long; ratio of width at caudal end to that at anterior end as 45:34; head about 4.5 times longer.

Prescuta of posterior and median region short; those of anterior region very short.

Anterior ventral plates with a deep median longitudinal sulcus on caudal part and ending at about middle of plate in the angle of a short v or u-shaped impression, the arms of which diverge cephalad. This median sulcus becomes gradually weaker caudad, fading out and disappearing near the twenty-first segment, the u-shaped impression disappearing farther cephalad.

Spiracles circular, rather large; first one largest, with the third considerably smaller and the second intermediate, the other decreasing gradually caudad as usual.

First pair of legs greatly reduced, being only about two thirds the length of the second ones and much more slender. Anterior and posterior pairs not sensibly differing in length or thickness.

Last ventral plate triangular or shield-shaped, the sides being convex; narrowly truncate at caudal apex.

Coxopleurae moderately enlarged; each with two large pores partially covered by the ventral plate and over free ventral and lateral surface with regularly spaced, moderately numerous, smaller pores but these larger and fewer than those of Mecistocephalus, etc.

Anal legs much longer than the penult but proportionately slender. Hair moderate in size, subsparse. Ultimate article narrowed distad, terminating in an obscure membranous tip.

Length of type, cir. 18 mm.

Locality.— British Guiana (taken at Washington, D. C., in pots of plants imported from that country).

One adult, or nearly adult, and three adolescent specimens.

Geophilidae.

The new genus and species described below, and *Ribautia bouvieri* Brölemann from the Carsevenne are the only representatives of this family, in the strict sense, at present known to occur within Brazil. Both genera belong to Chilenophilinae. Here also belongs Taiyuna, of which a representative from British Guiana is described.

Schizonampa, gen. nov.

Frontal suture not evident. Basal plate wide; overlapped by the cephalic plate. Antennae filiform. Dorsal plates bisulcate.

Labrum free; tripartite; the median piece of moderate size, triangular, with the free edge armed with teeth; lateral pieces fringed with more slender, spinescent processes.

Outer process of first maxillae uniarticulate; bearing well-developed membranous lappets. Inner branch seemingly set off by suture; Coxae fused at middle.

Second maxillae with coxae almost completely separated at middle, the connection being narrow and membranous. Pleurosternal sutures strongly developed. Palpus triarticulate, terminating in a large simple claw. Femur bearing at distoectal corner a strongly chitinized acute process; tibia also bearing a similar process in a nearly corresponding, or slightly more dorsal position. (Plate 6, fig. 6).

Prehensorial feet large, conspicuously exposed from above, and extending well beyond the front margin of the head; dentate within.

Prosternum without distinctly developed chitinous lines. Basal plate trapeziform; wide.

Ventral pores not evident.

Last ventral plate wide. Coxopleural pores appearing as two large pits on each side.

Anal pores not evident (in type).

Anal legs with seven joints distad of the coxopleura, the small

terminal article not bearing a claw. The extra article of the anal legs is at least strongly simulated on all the other legs, but especially the more posterior ones, by a contracted terminal division of the tarsus which for the most part is clearly distinct. (Plate 6, fig. 7).

Genotype.— *Schizonampa manni*, sp. nov.

This interesting genus is the second of the Chilenophilinae to be reported from Brazil, Ribautia being the first. Taiyuna, recorded from British Guiana, is the only other representative of the group at present known from South America.

Schizonampa may readily be separated from the other known genera of the Chilenophilinae lacking a claw on the anal legs and having the small additional distal article as shown in the following key.

Key to Genera of Section embracing Schizonampa.

a. Ventral pores present; distomesal angle of coxa of second maxillae prolonged; first maxillae without lappets. *Proschizotaenia* Silvestri.

aa. Ventral pores absent; distomesal angle of coxa of second maxillae not prolonged; first maxillae with lappets.

b. Pores occurring as two large pits on each coxopleura; femur and tibia of second maxillae prolonged into an acute, strongly chitinized process at distoectal angle. . *Schizonampa*, gen. nov.

bb. Coxopleural pores small and isolated; tibia not prolonged at distoectal angle.

c. First maxillae with two long membranous lappets on each side. . . . . *Watophilus* Chamberlin.

cc. First maxillae with but a single lappet on each side, this being borne on the femur. . . . . *Alloschizotaenia* Brölemann.

SCHIZONAMPA MANNI, sp. nov.

Slender; sides of body nearly parallel over most of length, but conspicuously attenuated at caudal end and moderately attenuated toward head. Body sparsely hirsute with short hairs; hairs of legs few, those present commonly arranged mostly toward the distal ends of articles.

Color of body very pale, whitish yellow, the yellow being very dilute. Head with basal plate, prosternum, and prehensors, darker, somewhat light orange or dilute ferruginous; the antennae also similar.

Cephalic plate much longer than wide (ratio about 4:29) narrowest cephalad; a little constricted in front of region where frontal suture would be if present, between which level and the caudal corners the sides are substraight or only very slightly convex; hairs sparse and mostly short or very short. Frontal plate not discrete. (Plate 6, fig. 1).

Antennae short, being only 1.9 longer than the cephalic plate; attenuated. Articles mostly short, decreasing in size distad, those between the fifth and the ultimate being especially short; ultimate article longer than the two preceding taken together. Hairs on the first four or five articles moderate in length, sparse, those of the more distal articles considerably shorter and more dense. (Plate 6, fig. 1).

Basal plate trapeziform as usual; much overlapped by the cephalic plate as also by the first succeeding tergite. Exposed portion very short, at the median line being but one eighth as long as the cephalic plate and being about 4.5 or 4.6 times wider than long. (Plate 6, fig. 1, 2).

Clypeal region without any porose area; areolae distinct and uniform excepting for a median area on the anterior portion in which the areolae are conspicuously reduced in size and on which four hairs are borne, the clypeal region being elsewhere glabrous.

Median piece of labrum rather large, triangular, bearing along the free margin five large acute and strongly chitinized teeth; lateral pieces with a fringe or more numerous slender spinescent processes. (Plate 6, fig. 4).

First maxillae bearing ectally on each side one moderately long membranous lappet. Coxosternum mesally incised, but the coxae well fused for most of length of contact. (Plate 6, fig. 5).

Coxae of second maxillae almost completely separated, there being only caudally a pale membranous connecting bridge. Pleurosternal sutures strongly developed. Coxa not at all produced at mesodistal angle. Femur and tibia bearing at distoectal angles a distinct, acute, well chitinized process, that of the tibia being somewhat more dorsal in position than that of the femur. Claw large and simple. (Plate 6, fig. 6).

Claws of the prehensor when closed extending much beyond the anterior margin of the cephalic plate; attaining the distal end of the second antennal article. Claw not crenulate; armed at base with a stout tooth which is subtruncate distally. Intermediate articles without trace of teeth, but the femur bearing on mesal side toward

distal end a stout, bluntly rounded, tooth and also bulging in a small well-rounded eminence near the proximal third where there is indication of a suture such as is frequently present (apparently of trochanter).

Lateral margin of prosternum parallel for most of their length, incurving only toward caudal ends. Prosternum a very little wider than long (ratio cir. 18:17); longer than the femur on outer side in about ratio 17:11; anterior margin bearing two low and rounded, strongly chitinous, teeth; hairs very sparse. (Plate 6, fig. 3).

The paired sulci of the tergites distinct; in addition to these a median longitudinal sulcus may be evident in the anterior region. Presenta very short in the anterior region, becoming moderately long in the median and posterior regions. Hairs mostly very short.

Spiracles all circular. The first one distinctly larger than the second, the others gradually decreasing caudad as usual.

First pair of legs reduced, being shorter and decidedly more slender than the second. Posterior pairs of legs relatively but very little more slender than the anterior ones. A small third tarsal division simulating or corresponding to the extra one of the anal legs is evident on all legs but especially the more posterior pairs; it is short and considerably more slender than the preceding one.

Anterior ventral plates with a rather deeply impressed median longitudinal sulcus which extends entirely across the plate. First ten or eleven sternites produced caudad into a wide triangular process or lobe which fits into a recess in the anterior border of the succeeding plate in each case. Ventral pores not detected.

Last ventral plate very wide; trapeziform, the sides slightly convex anteriorly but substraight for most of length, strongly converging caudad; caudal margin straight. (Plate 6, fig. 7).

Coxopleural pores consisting of two large pits on each side; of these pits the anterior one each side is wholly covered by the ventral plate and the caudal one is covered excepting for a small portion. (Plate 6, fig. 7).

Anal legs much longer than the penult; slender in the female. Second joint of tarsus long and slender; the third very short and abruptly more narrow. (Plate 6, fig. 7). Pairs of legs in the type thirty-seven.

Length 13 mm.

Locality.— State of Pará: Pará! (Mann and Baker).

One female specimen was secured.

Ribautia Brölemann.

Arch. zool. exp. et gen., 1909, ser. 5, **3**, p. 335.

Ribautia bouvieri Brölemann.

Bull. Mus. hist. nat., 1909, p. 7, fig. 19–26.

Locality.— State of Amazonas: Brazilian Guiana, on the upper Carsevenne or Calçoene (Geay, collector).

Taiyuna Chamberlin.

Pomona college jour. ent., 1912, **4**, p. 661.

This genus was previously known only from California and Arizona in which states three species are known to occur.

Taiyuna australis, sp. nov.

Color yellow, of weak orange tinge cephalad. Head and prehensors darker, brown. Antennae similar to head, but paler distad.

Body attenuated cephalad, more strongly so caudad; moderately robust.

Head widest a little caudad of level of labrum from where the sides converge a little and are straight to the rounded posterior corners and also converge slightly cephalad to the similarly rounded anterior corners; posterior margin widely, somewhat flatly, convex; anterior margin with each side straight, extending from corner a little cephalad of mesad to the middle where there is a distinct notch. In type the head is 1.38+ times longer than wide.

Inner branch of first maxilla terminating in an auriculiform membranous lobe at distoectal corner; bearing 3 to 5 bristles. Distal joint of outer branch long, apically rounded with the dorsoectal edge strongly chitinized; bearing about six bristles; membranous lappets long and spinulose, the distal one larger than the proximal, and extending much beyond distal end of the outer branch.

Coxae of second maxillae united at middle merely by a narrow membranous bridge; more strongly chitinized along edge below distomesal angle at which there is no trace of a process. Pleurosternal

suture strongly marked as usual; salivary pore opening through the mesal border toward the anterior end in the usual way. Joints of palpus all without processes; femuroid narrowed proximally; claw small, simple.

Antennae short, 1.8 times as long as head; attenuated. Articles decreasing uniformly in length from the first to the penult; ultimate article about equal in length to the two preceding ones taken together. Hairs of proximal articles sparse, distally becoming shorter and finer and more dense.

Claws of prehensorial feet when closed reaching to or a little beyond distal end of first antennal joint; stout. Claw armed at base with a small, distally rounded tooth. Intermediate joints with slight, low and broad, chitinous denticles. First joint toward distal end and a little proximad of the corner with a thick rounded tooth.

Anterior margin of prosternum unarmed; mesal incision very slight, semicircular. Prosternum wider than long in ratio 64:59; 1.64 times as long as outer length of prefemur; sides straight, only slightly converging from anterior end to the rounded caudal corners.

Basal plate trapeziform, strongly narrowed cephalad; sides slightly convex caudad and slightly concave cephalad. 2.9 times as wide as median length, $\frac{1}{4}$ as long as head. Overlapped both by cephalic and by first dorsal plate; the length of exposed portion to total length inclusive of covered ends as 3:4. Plate as a whole about 1.85 times wider than long.

Anterior prescuta short, those of middle region becoming long and exceeding half the length of the major scuta, those of caudal region again short. Hairs short and sparse.

Eight or ten of the first ventral plates with a triangular lobe on caudal border fitting into an excavation in the succeeding plate. Plates smooth, without pronounced furrows, or in some showing a shallow median longitudinal depression.

Spiracles large, circular, or with the anterior ones very slightly longer dorsoventrally. First spiracle much exceeding the second in size, the others gradually decreasing caudad.

Legs of first pair a little more slender than the second, only slightly shorter. Anterior and posterior pairs not at all or but little differing in length and robustness.

Last ventral plate narrow; sides at first but slightly converging caudad, but more decidedly so toward posterior corners; caudal margin subtruncate. Depressed along the median longitudinal line.

Coxopleurae moderately inflated; ventrally pierced by about 14

or 16 pores, part of which are arranged along and partly covered by the last ventral plate; a pore somewhat larger than the others is isolated midway between the most caudal of the other pores and the distal end of coxopleura.

Anal legs moderately long; slender, the joints decreasing in diameter from the femur distad; second tarsal joint moderately attenuated distad and bearing a very small and slender but distinct claw.

Length about 42 mm.

Locality.— British Guiana. (Taken at Washington, D. C., in pots of plants imported from that country).

LITHOBIOMORPHA.

Lithobiidae.

Lithobius Leach.

Trans. Linn. soc. London, 1814, **11**, p. 381; Latzel, Myr. Ost-Ung. monarch., 1880, **1**, p. 31; Meinert, Proc. Amer. philos. soc., 1886, **23**, p. 174; Verhoeff, Bronn's Thierreich, 1907, **5**, p. 239.

Lithobius forficatus (Linné).

Scolopendra forficata Linné, Syst. nat. ed. 10, 1758, **1**, p. 638.
Lithobius forficatus Stuxberg, Ofvers. Kong. vet. akad. Forh., 1875, p. 27; Fedrizzi, Atti Soc. Ven-Trenk., 1875, **5**, p. 205; Latzel, Myr. Ost-Ung. monarch., 1880, **1**, p. 57; Meinert, Proc. Amer. philos. soc., 1886, **23**, p. 176.
Lithobius parvolus Fedrizzi, Loc. cit., p. 213.
Lithobius trilineatus Brölemann, Cat. Myr. Brésil., 1908, p. 33.
(For extended synonymy and bibliography cf. Stuxberg, Loc. cit.).

Locality.— Recorded from Brazil as *Lithobius trilineatus,* the type being the only record of the species or genus from the country. It was probably introduced.

SCUTIGEROMORPHA.

Scutigeridae.

Pselliophora Verhoeff.

Sitz. Gesellsch. nat. freunde Berlin, 1904, p. 259; Bronn's Thierreich, 1907, **5**, p. 230.

Pselliophora nigrovittata (Meinert).

Scutigera nigrovittata Meinert, Proc. Amer. philos. soc., 1886, **23**, p. 173; Pocock, Biol. Centr. Amer., 1895, p. 650; Brölemann, Ann. Soc. ent. France, 1902, **71**, p. 650; Brölemann, Cat. Myr. Brésil, 1908, p. 34.

Localities.— State of Rio Grande do Norte: Natal! (W. M. Mann. Numerous specimens); State of Parahyba: Independencia! (Mann and Heath); State of Matto Grosso: Madeira-Mamore R. R. camp 41, on the Rio Madeira! (W. M. Mann); State of Bahia: Santo Antonio da Barra); Also Brazil, without special locality (M. C. Z.).